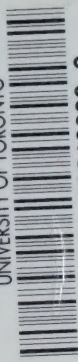


FACULTY OF DENTISTRY LIBRARY
UNIVERSITY OF TORONTO



3 1761 03919889 0



Digitized by the Internet Archive
in 2025 with funding from
University of Toronto

<https://archive.org/details/31761039198890>

July
Juillet
1988
Vol. 54
No. 7

JOURNAL

CANADIAN DENTAL ASSOCIATION
LIBRARY

Canadian
Dental
Association

L'Association
Dentaire
Canadienne



If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
**RETOURNER A
L'EXPÉDITEUR**
Port payé

▲ CDA Convention
1988

▲ Le congrès de
l'ADC 1988

INTRODUCING NEW CREST FOR KIDS SPARKLE GEL



TOUGH ON CARRIES – A LOT OF FUN FOR KIDS.

In the war against cavities, the very first battle is getting kids to brush. Research shows that 90% of children need to be reminded to brush.¹ Quite a challenge!

And now Crest meets that challenge with new Crest For Kids, the toothpaste with the sparkly look and flavour that was specially designed to make brushing fun. Tested with children 6 to 12, Crest For Kids was proven to have taste and sparkle appeal.¹ So they actually rush to brush with

this great new Crest.

But there's even better news. Crest For Kids provides the same excellent anticaries protection you have come to expect from Crest.

To help reinforce your message to kids of the importance of proper oral health, we've developed a program consisting of a variety of fun-filled materials for office and home. To get more information or order your materials, just call 1-800-668-0153.

In the meantime, why not

have your own kids try Crest For Kids? We think the results will convince you it's a winner.

1. Data on file at Procter & Gamble.

Crest[®] For Kids
SPARKLE GEL

**RECOMMEND
THE SERIOUS
CAVITY FIGHTER
THAT'S FUN
FOR KIDS.**



*Trademark



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

Canadian Dental Association
L'Association Dentaire Canadienne

July 1988

Vol. 54 No. 7

Features

Porcelain posterior
resin-bonded
restorations: 499

Current perspectives on esthetic
restorative dentistry (Part II)
John N. Nasedkin, DDS, MRCD(C)

Effect of root
curettage and sodium
hypochlorite treatment
on pedicle flap coverage
of localized recession 515

R.D. Oles, DDS, MS et al

Triazolam:
An oral sedative for the
dental practitioner 511

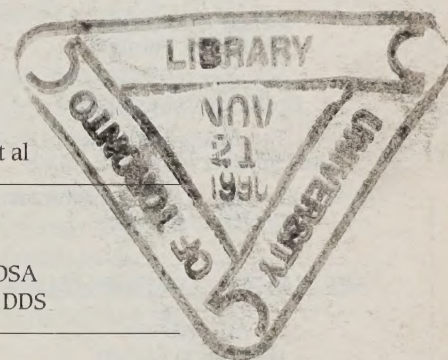
Earle R. Young,
DDS, BScD, MSc, FADSA
Douglas Mason, BSc, DDS

Conservative treatment
of central giant cell
granuloma of the
mandible 523

A.E. Swanson, DDS, MS, FRCD(C)

Use of prophylactic
antibiotics in oral
surgery 529

Bodhan Kryshchalskyj, BSc, DDS



CONVENTION '88

A view of downtown Edmonton

Departments

- 469 Editorial
- 470 President's Column
- 471 News Update
- 477 CDA Convention Section
- 490 Briefly
- 492 CDA RSP
- 493 Book Reviews
- 496 Resource Centre
- 497 Letters
- 539 Announcements
- 543 Obituaries
- 545 Marketplace
- 547 Advertiser's Index
- 550 Back Talk

PUBLICATIONS COMMITTEE

Chairman

Dr. John Hardie

Members

Dr. P.C. Desautels

Dr. H. Jack Stockton

A. Jardine Neilson

JOURNAL STAFF

Executive Director

A. Jardine Neilson

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Scientific Editor (English)

Dr. Robert Turnbull

Scientific Editor (French)

Dr. Pierre C. Desautels

Advertising Manager

Anna Spencer (416) 482-1830

Classified Advertising and Circulation Coordinator

Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics

Dr. Aaron Fenton

Oral Pathology

Dr. James Main

Orthodontics

Dr. Alan Lowe

Public Health

Dr. Donald Lewis

Endodontics

Dr. Barry Korzen

Paedodontics

Dr. Howard Stein

Oral Surgery

Dr. Huan Pham

Forensic Dentistry

Dr. Robert Dorion

Periodontics

Dr. Harvey Freedman

Nutrition

Nina Burgess

Canadian Dental Hygienists Association

Carol Worobey

Canadian Dental Assistants Association

Elaine Wesley

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada - \$42; United States - \$44; all other - \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the journal.

ISSN0709 8936

Canadian Dental Association

EXECUTIVE COUNCIL

President

Dr. R.J. Markey
Vancouver, B.C.

Past-President

Dr. J.R. Robertson
Summerside, P.E.I.

President-Elect

Dr. J.W. Niedermayer
Regina, Saskatchewan

Dr. K.L. Roach
Pembroke, Ontario

Dr. D.E. MacFarlane
Vancouver, B.C.

Dr. Ray Wenn
Charlottetown, P.E.I.

Dr. L.S. Allen
Winnipeg, Man.

Dr. G. Dubé
Lachute, Quebec

Dr. B. Sigfstead
Edmonton, Alta.

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini
Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws

Dr. G.H. Peacock
Saskatoon, Saskatchewan

Dental Materials & Devices

Dr. R.Y. Barolet
Montréal, Québec

Education and Accreditation

Dr. A. Schwartz
Winnipeg, Manitoba

Ethics

Dr. R. Thordarson
Vancouver, B.C.

Hospital and Institutional Services

Dr. E.L. MacInnis
Halifax, N.S.

Information Services

Dr. P. O'Brien
St. John's, Nfld.

Insurance and Investment

Dr. J. Durran
Hamilton, Ontario

Nominations

Dr. J.R. Robertson
Summerside, P.E.I.

Student Affairs

Miss M. Schildkraut
Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer

A. Jardine Neilson

Manager, Executive Services

Sandra Déziel

Council Secretary

Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation

Brian Henderson

Education, Accreditation, Professional Councils

Coordinator of Accreditation

Lorraine Emmerson

Surveys, graduate, undergraduate,
auxiliary programs, hospital services

Associate Director, Professional Councils

Janice Forsythe

Third Party Dental Plans, Health Care,
Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration

Joel R. Neal

Administration, finances, information systems,
membership

Business Manager

Shelagh Dunlop

Accountant

Joan Wilkes

Membership Secretary

Lydia Allison

COMMUNICATIONS

Director of Communications

Linda Teteruck

Dental Aptitude Testing Program, Journal,
Dental Awareness Program, Student Affairs,
Resource Centre, MEDLINE, Conferences,
Conventions, media relations,
public information.

Information officer

Kimberley Allen-McGill

DAT Coordinator

Win Mobley

Librarian/MEDLINE

Martha Vaughan

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Advertising Manager

Anna Spencer (416-482-1830)

Production/Circulation/Classified

Jennifer McClinton

CDA Conventions — A New Look

For many years, CDA conventions have migrated from city to city, organized each year by a different committee. Continuity was assured by CDA's permanent staff and, thanks to them and to the relentless efforts of the general chairmen and their committee members, this formula yielded satisfactory results. In fact, most people who attended the conventions returned home with a sense of achievement and contentment.

But, concerns began to surface with the realization that the attendance figures were far from those that a national convention should attain. Furthermore, the number of participants varied from year to year. Although the organization of the convention was both a challenging and satisfying experience for the general chairmen, it was also at times a painful apprenticeship for some. As far as CDA was concerned, it represented a major investment of time and resources.

These difficulties have led CDA to develop a new vision for its convention, which will now become the banner of the Association, enabling CDA members to see, feel and be exposed to the services available to them.

National conventions are very important to our profession. They are a unique opportunity where dentists can exchange ideas with colleagues from across the country, learn about new trends in dentistry, then return to their practice with a feeling of enrichment, strength and revitalization.

Cost is an influencing factor in a dentist's decision to attend a convention. As convention organizers, we try to negotiate the best possible rates for hotel rooms. In the future, registration fees will be kept to a minimum for all members of the dental team. The dentist is also faced with a loss of revenue during his absence. It is therefore necessary to be assured that this loss will be more than compensated by the increased productivity level of the dentist and his staff, as they return to their office with newly acquired knowledge.

An invisible and often forgotten member of the dental team is the dental industry. In addition to the many services they render throughout the year, dental companies invest much time and money to build a varied convention exhibition which, in itself, is a learning experience.

Today's active and avant-garde dentist should consider taking more time off to replenish his knowledge at different levels: scientific, professional, business, social and personal. For this reason, one convention or one meeting per year is not sufficient. In addition to attending local or provincial meetings, dentists should also plan to attend their national convention on a regular basis.

The revitalization of CDA's convention begins this year in Edmonton under the able leadership of the General Chairman, Dr. Herb Link and his convention committee. CDA has now completed the process of planning a convention that will appeal to all members of the dental care team. An excellent scientific program, low registration fees, easy access to the convention by all dental personnel, an expansive exhibit area and exciting social programs await you in Edmonton.

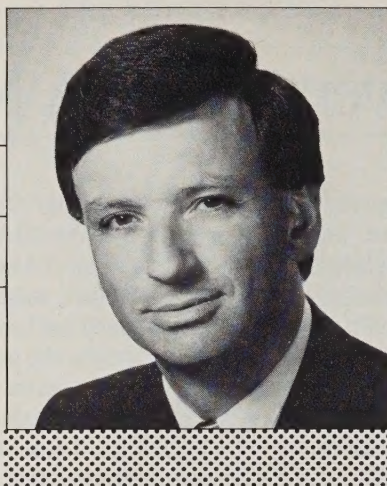
And don't forget to mark CDA's 1989 convention dates on your calendar now — we will be in Vancouver, British Columbia, August 27-30.

The future of CDA's Conventions rests with you — the membership. CDA has made a strong commitment to provide you with an outstanding national convention.

Dr. Michel Jahjah
General Convention Chairman

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted.

President's Column



Who have you criticized lately?

Criticism is an interesting phenomenon. It is probably the most predictable aspect of involvement in organized dentistry. If you are around this business long enough, you get to gore a lot of oxes, half the time without trying too hard. Dentists are a demanding lot. We are tough-minded, independent, conscientious, and at times, driven. It is no wonder that consensus on some issues is difficult to achieve. Our objectives on many issues can be easily defined. Our interpretation of the best way to get there is at times frustratingly dissimilar. Being involved in the political end never ceases to be a learning experience. The sheer volume of work carried out at all levels of organized dentistry would be an eye-opener for most members of our profession. It constantly amazes me.

The people who deserve a tremendous amount of credit are the ones who have made organized dentistry their vocation. We have Executive Directors — CEO's across this country whose contribution can never be fully appreciated. They are occasionally criticized for being too strong, too weak, too political, too abrasive, and at times, too diplomatic. You figure it out. Registrars have the most difficult task imaginable. They have a mandate to protect the public, and for the most part they do their job with more skill and finesse than would seem possible. They are criticized for carrying out their responsibilities. Interesting. Every local and provincial dental organization in this country including CDA is criticized at times for being pro-active, inactive, or of questionable competence on some issue or other; and that criticism is useful, welcome and valid, if constructive.

In evaluating the performance of your organizations, it would be well to remember that almost everyone is stretched to the limit of their resources. The personnel at all staff levels are dedicated, enthusiastic, and overworked. Together with the politicians, they attempt to meet the needs and requirements of a very demanding profession.

There is nothing wrong with being demanding or critical, as long as you are willing to contribute your share to make our profession better. Contribute time and expertise if you are able. But don't forget the money. Associations and licensing dues are another often criticized entity, and far too many ignore their responsibilities at this level. My answer to that is simple. Organized dentistry is not perfect, but it is trying, and more often than not succeeding. We are working for everyone. If you want quality, you must be willing to pay the price. Think about it. △

*Ron J. Markey, DDS, MSD
President, Canadian Dental Association*

CDA urges Parliament to pass Bill C-51

The Canadian Dental Association, concerned about delays in the handling of the federal government's proposed Bill C-51, The Tobacco Products Control Act, moved in concert with other national health organizations recently, to urge passage in the current session of Parliament.

The CDA thrust was two-fold: letters were sent by the CDA President, Dr. Ron Markey, to the Prime Minister, Opposition Leader John Turner, NDP Leader Ed. Broadbent, Deputy Prime Minister Don Mazankowski, the Hon. Herb Gray, Mr. Nelson Riis and Health Minister Jake Epp. Copies were also sent to Liberal Health Critic Sheila Copps, NDP Health Critic Margaret Mitchell, and all Members of Parliament. The second aspect of the thrust was a full page newspaper advertisement, carried in English in The Globe and Mail, on May 9, and in French in Le Devoir, on May 11. The ads were supported by a wide range of health, educational and religious organizations.

The text of the letter from Dr. Markey, follows:

The Right Honourable Brian Mulroney
Prime Minister
House of Commons
Ottawa, Ontario
K1A 0A6

Dear Mr. Prime Minister:

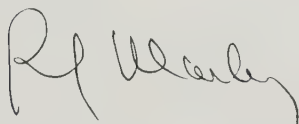
The Canadian Dental Association is extremely concerned with delays which we fear may prohibit Bill C-51 from becoming law. As a national health association we have supported and monitored the progress of this precedent setting legislation. We consider its passage by Parliament in the current session to be imperative.

All parties in the House support Bill C-51. We have corresponded with individual M.P.'s on this critical issue and have received overwhelming reassurance of their support which leads us to believe that the Bill would receive prompt passage in the House.

Public support of Bill C-51 is widespread and well-known. The Health community has voiced its support in the strongest of terms. The premature deaths of 35,000 Canadians every year due to smoking must be addressed and the youth of Canada defended against future predictions of tobacco addiction.

I urge you as the Prime Minister of Canada, to do all you can to ensure that Bill C-51 is passed as soon as possible.

Sincerely yours,



Ron J. Markey, DDS, MSD
President

P.S. The contents of my letter to you will be published in the Journal of the CDA for the information of our 11,000 members.

THE ADVERTISEMENT

The very prominent full page advertisement in the Globe and Mail, bore the photo of the Prime Minister and the heading: "Dear Prime Minister: The decision is in your hands. Tobacco Law, Bill C-51, is in jeopardy".

The text follows:

It's time for your leadership

More than 300,000 smokers quit smoking each year. Another 35,000 are killed by tobacco industry products. If these customers are not replaced, the industry will die. Since few people start to smoke after the age of 19, from where will the industry's new customers come if not from the child and adolescent market? Yet the tobacco industry still claims that it's not interested in young Canadians.

In the next few days, you and your government will make two decisions which Canada's major health agencies believe will influence how many tens of thousands of our young will be hooked by tobacco addiction. And the same decisions will also influence how many tens of thousands, inevitably, tragically, prematurely, will die.

Tens of thousands of deaths is not an exaggerated forecast. It is a modest estimate by the best minds in medical science. In a very real sense, the lives of thousands of Canadian children are in your hands.

With 35,000 deaths each year, tobacco industry products kill more Canadians than would be killed by the collision of two fully-loaded jumbo jets every week for a year. Bill C-51, your *Tobacco Products Control Act*, which would ban tobacco advertising and promotion and strengthen health warnings, is a moderate, reasoned, legislative response to an immense health problem.

Private Member's Bill C-204, the *Non-smokers' Health Act*, is complementary to your government's bill. It would bring tobacco under the *Hazardous Products Act* and provide modest protection for non-smokers in federal workplaces and transportation under federal jurisdiction.

It took courage and integrity for you and your government to buck the tobacco industry and its friends and the deceptive, multi-million dollar campaign the industry launched to block these bills. To their credit, the Liberal and New Democratic parties set aside partisan politics to bring Bills C-51 and

C-204 through Second Reading and back to the House for the final approval. Given your huge majority, Prime Minister, if you want these bills to pass, you know they will pass.

Time is running out

But, as you know, time is rapidly running out on this Session of Parliament. The House may soon dissolve and Bill C-51 would die on the order paper. Unless you and Deputy Prime Minister Don Mazankowski bring this bill forward for Third Reading, and it passes very soon, the good work you have done will also die. With tragic results.

Unless you act quickly, even if parliament passes Bill C-51, there may not be sufficient time for approval by the Senate and Royal Assent. The same is true of Bill C-204. **And any delay which brings this conclusion will hand the tobacco industry one of the biggest victories it has ever experienced, anywhere in the world.** (Even if Bill-51 were passed in the fall — an unlikely scenario — there might not be enough time to complete the regulations and meet the bill's time-table.)

Epidemics must be a priority

Despite your leadership to date on Bill C-51, the government seems to be struggling with a problem of priorities. Even though your officials say Bill C-51 is the cornerstone of any comprehensive preventive approach to the epidemic, even though your government claims that this bill is on its list of legislative priorities, week after week, Bill C-51 has been passed over as other bills have been given higher priority. And now, the session is running out of days.

Mr. Prime Minister, what other bills presently before the House are designed to confront a problem that causes

• CANADIAN ASSOCIATION OF HOSPITAL AUXILIARIES • CANADIAN ASSOCIATION OF OCCUPATIONAL THERAPISTS • CANADIAN ASSOCIATION OF PATHOLOGISTS • CANADIAN CANCER SOCIETY • CANADIAN CHIROPRACTIC ASSOCIATION • CANADIAN COUNCIL OF CARDIOVASCULAR NURSES • CANADIAN COUNCIL ON SMOKING AND HEALTH • CANADIAN DENTAL ASSOCIATION • CANADIAN HEART FOUNDATION • CANADIAN HOME AND SCHOOL AND PARENT-TEACHER FEDERATION • CANADIAN HOSPITAL ASSOCIATION • CANADIAN LUNG ASSOCIATION • CANADIAN MEDICAL ASSOCIATION • CANADIAN NURSES' ASSOCIATION • CANADIAN PHARMACEUTICAL ASSOCIATION • CANADIAN PHYSIOTHERAPY ASSOCIATION • CANADIAN PUBLIC HEALTH ASSOCIATION • CANADIAN TEACHERS' FEDERATION • NATIONAL ACTION COMMITTEE ON THE STATUS OF WOMEN • NATIONAL CANCER INSTITUTE OF CANADA • NON-SMOKERS' RIGHTS ASSOCIATION • PHYSICIANS FOR A SMOKE-FREE CANADA • ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA • THE COLLEGE OF FAMILY PHYSICIANS OF CANADA • UNITED CHURCH OF CANADA

35,000 deaths a year?

What bill presently before the House could be more important than making it more difficult for an industry to introduce youngsters to an addictive, lethal product which will cut, on average, 8 years from the life expectancy of each child who begins to use that product?

You cannot be passing over Bill C-51 because it will occupy great time in the House. This legislation has **all-party support**.

You know both bills can pass. Your government has a huge majority and a mandate to show leadership. And, in Mr. Epp, you have a health minister gaining international stature for his leadership on this issue.

And, your own polls show strong support for this legislation. These bills are endorsed by hundreds of organizations representing millions of Canadians.

We know you are not intimidated by the misleading arguments about these bills promoted by the tobacco industry. Your Health Minister has answers for every concern, real and fabricated, raised by the tobacco industry.

Give kids a chance

Mr. Prime Minister, as some of Canada's major organizations in the health and human services community, we are asking you to give Canadian kids a chance. We appeal to you to bring Bill C-51 forward and pass it quickly, before you run out of time. Before you hand the tobacco industry the biggest victory it has ever had.

We appeal to you not to allow partisan politics to interfere with Bill C-204. Your government's leadership will be noted in the history of preventive medicine in Canada. And young Canadians will be in your debt for generations to come.

The advertisement concludes with the title of the combined group — "National Campaign to Pass Bill C-51" — and a message to the public: "To Members of the Public: Help strengthen this message by contacting your Member of Parliament. For the name or telephone number of your MP, call Elections Canada at 1-800-267-8683. Write your MP quickly, at the House of Commons,

Ottawa, Ontario K1A 0A6. No postage is required."

CDA in forefront

The CDA has been in the forefront of organizations that have been urging this measure by the federal government, and at its 1987 Annual Meeting, the Board of Governors adopted the following "Policy on Tobacco Products and Health".

CDA Tobacco Products Policy

Practising dentists see firsthand the initial signs of oral problems that arise when individuals use tobacco products, including smokeless tobacco. Dentists are concerned that tobacco products have been shown to contribute to oral diseases, including oral cancer.

The use of tobacco products is the leading cause of preventable death and disease in Canada, accounting for some 30,000 deaths annually. The Canadian Dental Association recognizes, with deep concern, the effects of the use of tobacco products, including smokeless tobacco, on both general and oral health. The following policy affirms the need to eliminate the use of all tobacco products in Canada and establish a norm of non-smoking as a social attitude for Canadians.

1. The Canadian Dental Association applauds government's efforts to ban all advertising and promotion of tobacco products.
2. CDA urges that regulations prohibiting the sale of all tobacco products to minors be strictly enforced.
3. CDA encourages governments to develop educational programs aimed at smoking prevention among Canadians in general, but particularly in our school systems.
4. CDA urges dentists to set an example to the general public by not using tobacco products.
5. CDA encourages dentists to place no smoking signs in their reception areas and declare their offices smoke-free environments.
6. CDA urges governments to encourage those engaged in the cultivation, production and sale of tobacco products to find alternative crops and to diversify into alternative activities.
7. CDA urges the prohibition of exporting tobacco and tobacco products, especially to Third World countries.
8. CDA urges that the health of non-smokers be protected by banning smoking in all public places, through provincial legislation and/or municipal bylaws, and specifically urges that smoking be banned in all workplaces, schools, health care facilities and public transport systems.

As evidence of CDA's commitment to the above policy, it has:

- (a) already declared a no smoking clean air policy for its work and meeting environments; and,
- (b) adopted a policy of refusing to accept tobacco advertisements in any of its publications.

Because of the experience of the dental profession with the oral manifestations of problems associated with the use of tobacco products, it is our moral and professional responsibility to encourage, as an on-going priority, the eradication of the use of tobacco products. △

ODA Annual Meeting Highlights

Dr. William (Bill) Glave of Aurora accepted the chain of office as the new President of the 5,300 member Ontario Dental Association during the Board of Governors meeting on May 7, 1988. A 1965 graduate of the University of Toronto, Dr. Glave is past-president of the York Region Dental Society and has represented York as an ODA governor since 1979. He was instrumental in establishing the Dentists at Risk Program which helps dentists suffering from stress, alcohol and drug related problems.



Dr. Jim Brookfield, ODA Past-President, presents ODA's Presidential Chain of Office to Dr. Bill Glave.

Dr. Ronald Bell of Oakville and Dr. Wesley J. Dunn of London, Ont. were honored with the ODA's Barnabus Day Award. The Award commemorates Ontario's "Father of Dentistry", Barnabus Day, and recognizes outstanding service to the profession. This was one of the rare occasions in ODA's history when there was more than one recipient.

Dr. Bell, who was President of the ODA in 1984, has served for many years on various committees and was particularly instrumental in the development of the Association's policies for prepaid dental plans.

Dr. Dunn, who has achieved great stature for his contributions to the profession not only in Ontario, but Canada, and internationally, was the founding Dean of the Faculty of Dentistry at the University of Western Ontario, in London, and was the second editor of this Journal, serving from 1953 to 1958. He is a respected Canadian authority on jurisprudence and ethics, as they relate to the health professions, particularly, dentistry. △

Health Minister marks WHO's 40th anniversary

Health and Welfare Minister Jake Epp recently praised the World Health Organization for its many achievements as it marked its 40th anniversary with World Health Day.

"The 1988 World Health Day theme — 'Health For All — All for Health' not only reflects the accomplishments attained by WHO, but also the challenges still faced by its member countries," said the Minister. "Since the World Health Organization's constitution came into force, its international activities have been of benefit to Canada and to other parts of the world."

The World Health Organization's objectives are based on a cooperative effort to protect and promote human health. Its constitution defines health as a "state of complete physical, mental and social well-being and not merely an absence of disease and/or infirmity."

While noting such achievements as the successful eradication of smallpox and the outstanding efforts of WHO in coordinating the current worldwide battle against AIDS, Mr. Epp also commented on the disparities and challenges which lie ahead.

"A wide gulf still exists between health haves and have nots. Gross inequities among countries continue in health, health care and the amenities which foster and promote good health, such as proper nutrition, clean water and a safe environment.

"Canadians still have health problems to overcome," said Mr. Epp. "Although we have made important strides over the last few years, more efforts have to be made to reduce the risk related to lifestyles, in particular, those associated with tobacco."

The Minister noted that, in addition to April 7 being World Health Day, it had also been proclaimed by the WHO as the world's first No Tobacco Day. △



Patient files suit for delayed appointment

Health care professionals it seems, are facing yet another practice hazard of late.

A recent news story from Florida relates an incident in which a plant nursery owner decided his time was worth money, and anyone who delayed him would have to pay.

He was made to wait an hour to see his ophthalmologist and believed it was fair game to send the doctor a bill.

Dr. G. Richard Cohen had arranged an 8.45 a.m. appointment for nursery operator William Ennis, to discuss a possible cornea implant. When Mr. Ennis was forced to wait an hour beyond that time, he sent Dr. Cohen a bill for \$90.

Dr. Cohen ignored the bill, but Mr. Ennis continued to send reminder notices. When there was no response from Dr. Cohen, Mr. Ennis filed a civil

suit against him.

Dr. Cohen said he was flabbergasted by the action. He recalled that he had had five legitimate emergency cases that morning and that made it impossible to keep the appointment at 8.45 a.m.

Eventually Mr. Ennis proposed an out-of-court settlement with the doctor. He said he would drop the suit if Dr. Cohen would make a \$90 donation to the local Lions Club, a service club that raises funds for eye care for the poor in that area.

Dr. Cohen agreed, and made the donation.

"I did it just to avoid going to trial," Dr. Cohen explained. "This could cause havoc if people could sue just because they have to wait. Next, they'll be suing if they wait in line at Sears." △

Saskatchewan introduces triplicate prescription program in August

By August 1, a Triplicate Prescription Program will be in place in Saskatchewan.

The program was framed only after several meetings between members of the College of Dental Surgeons of Saskatchewan, that province's College of Physicians and Surgeons, the Saskatchewan Medical Association and the Saskatchewan Pharmaceutical Association.

The Triplicate Prescription Program is based on a similar one that has been in operation in Alberta. Members discussing the proposal are convinced that the diversion of certain prescription drugs to illicit use is a significant and growing problem in society, and an approach must be taken to address the problem. Existing monitoring programs such as those available through the Bureau of Dangerous Drugs are helpful, but currently do not provide the up to date information that one may wish. The proposed system offers dental, medical and pharmaceutical professionals access to a data base to within ten days of prescribing. The system therefore has the potential to prevent much of the abuse as opposed to simply monitoring and implementing belated actions.

Under the program, a panel of frequently abused drugs must be written on Triplicate Prescription forms. These forms, and a list of the drugs requiring their utilization will be provided through the College of Physicians and Surgeons. The prescription written thereon will be valid for only three days from the date of issue. The pads are expected to be personalized and numerically recorded and cannot be exchanged between dentists. Following the prescribing of the necessary drug, the patient takes two copies to the pharmacist of their choice, and signs the form upon receipt of the dispensed prescription. The pharmacist forwards one part to the College of Physicians and Surgeons of Saskatchewan where it will be entered into a database, from which information may be obtained by the members of our profession.

The success of such a program is dependent upon co-operation in a given province. The objective of the program is to curb the abuse of narcotics. It is anticipated that, parallel to the experience in Alberta, some success will be achieved in Saskatchewan. △

Dr. Ron Jordan appointed Dean, University of Manitoba



Ronald E. Jordan, BA, DDS, MSD, FICD

The University of Manitoba Board of Governors, on recommendation of President Arnold Naimark, approved the appointment of Dr. R.E. Jordan to be Dean of the Faculty of Dentistry effective April 1, 1989.

Dr. Jordan obtained his DDS degree from the University of Alberta, and his Master's degree in Restorative Dentistry from the University of Washington. He has been in general dental practice in Winnipeg, and was a part-time Instructor in the early days of the Manitoba Faculty of Dentistry. Subsequently, he held positions at Dalhousie University and the University of Pittsburgh, before joining the University of Western Ontario, where he has been Professor and Chairman of the Department of Restorative Dentistry and is currently Associate Dean for Clinical Affairs.

Well known throughout the world of dentistry for his lectures on esthetic composite bonding Dr. Jordan is author or co-author of three text books, and contributor to numerous scientific journals. △

Current regulatory status of dental implants in Canada

Health and Welfare Canada's Health Protection Branch has reported the current regulatory status of dental implants (as of mid-May) to this Journal.

Since April 1, 1983 all new implantable devices have been subject to premarket review and must obtain a Notice of Compliance before being sold in Canada. This may be obtained by submitting to the Director, data substantiating safety and efficacy of the device.

However, from time to time some products enter the market without going through the proper regulatory process. Recent concerns regarding dental implants being sold in Canada have prompted the Branch to request safety and efficacy data from all those manufacturers that could be identified to date, in this device class.

Appendix I has been provided to enable the Dental Profession to be made aware of the devices that are authorized for sale in Canada as of March 17, 1988.

Individuals wanting to know the status of a new product or wanting to have a copy of the Medical Devices Regulations, may address their inquiries to Premarket Review Section, Premarket Division, Health Protection Branch, Health and Welfare Canada, Environmental Health Centre, Tunney's Pasture, Ottawa, Ontario, K1A 0L2, or call (613) 954-0386.

APPENDIX I

As of March 17, 1988 the following manufacturers have provided data on safety and efficacy and have permission to sell their products in Canada.

Manufacturer: Interpore International Inc.

Device: Interpore IMZ Implant System
(mechanical attachment)

Notices of Compliance issued January 6, 1987.

Device: Interpore 200: Sterile Granules Alveolar Ridge Augmentation
Anterior Curve
Posterior Block
Unshaped Block
Alveolar Ridge Maintenance
Granules for Repair of Periodontal Defects
Rectangular Wedge
Pyramidal Wedge
Crescent Wedge

Notices of Compliance issued March 8, 1985.

Device: IP200 Malar Onlay
IP200 C-F Rectangle
IP200 C-F Curve 90R
IP200 C-F Curve 45R
IP200 Granules
IP500 Rectangle
IP500 Square
IP500 Rectangle

Notices of Compliance issued February 28, 1986.

Manufacturer: Nobelpharma Canada Inc.

Device: Biotes Osseointegration Dental Implant System

Notices of Compliance issued October 30, 1986 (non-sterile), and June 30, 1987 (sterile).

*Clinical Trial Status granted until September 1988

APPENDIX I (cont'd)

Manufacturer: Anchor Implant Ltd.

Device: Anchor Dental Implant System

Manufacturer: Calcitek Inc.

Device: Calcitite RM

Notice of Compliance issued November 27, 1984.

Manufacturer: Orthomatrix Inc.

Device: Hydroxyapatite Models HA-1000 and HA-500.

Notice of Compliance issued October 15, 1985.

Manufacturer: Sterling Drug Inc. (Cook-Waite Laboratories Inc. Division)

Device: Alveograf — Alveolar Ridge Bone Grafting Implant Material

Notice of Compliance issued March 8, 1985.

Device: Periograph (Durapatite Particulate 40-60 Mesh) Implant

Manufacturer: Core-Vent Corporations

Device: Core-Vent Implants (non-sterile)
Core-Vent Implants (sterile)
Micro-Vent Implants (sterile)
Micro-Vent (Hydroxyapatite coated) implants
Screw-Vent Implants (sterile)
Swede-Vent Implants (sterile)
(included are various attachment systems)

Notices of Compliance issued March 31, 1988.

Device: Sub-Vent Implants (sterile)

*Clinical Trial Status granted until April 1989.

*Permission to sell to designated investigators only.

Did you know?

Representatives from more than 60 national and regional women's and health organizations met in Ottawa in March to discuss new approaches to smoking prevention and cessation among girls and women.

The three-day "Women and Tobacco" conference was sponsored by the Health Promotion Directorate, Health and Welfare Canada.

Two frightening trends in tobacco consumption have become a cause for the concern about women's use of tobacco:

- teenage girls and young women aged 20-24 are the only consumers continuing to increase their use of cigarettes (some surveys show up to 50% of women aged 20-24 smoking daily) and
- while male smoking declined by 15% between 1970 and 1983, female smoking (all ages) declined by only 4%.

Participants at the "Women and Tobacco" Conference discussed current and future prevention and cessation strategies.

Manitoba Lung Association, "Easy Breathing", April '88

ROYAL CANADIAN DENTAL CORPS ASSOCIATION

Ex RCDC and CFDS Personnel

While at

the CANADIAN DENTAL ASSOCIATION
CONVENTION in EDMONTON

You are cordially invited
to ATTEND

A DENTAL CORPS RECEPTION

To be held in
THE OFFICERS' MESS
LANCASTER PARK
Edmonton, Alberta

MONDAY AUGUST 22nd, 1988

From: 1600 Hours to 1800 Hours

4:00 p.m. 6:00 p.m.

Buses will leave convention centre
1530 hrs.

WIVES ARE WELCOME!

RSVP.

C.G. Hunt

26 Southdale Drive

Markham, Ont.,

L3P 1J7



Congregate in '88

Canadian Dental Association Convention



Side view of the upper level of the Edmonton Convention Centre, in downtown Edmonton.

PHOTO: COURTESY OF THE FEDERAL DEPARTMENT OF REGIONAL INDUSTRIAL EXPANSION

August 21-24, 1988

Edmonton, Alberta

Hosted by the Alberta Dental Association

Edmonton
Convention
Centre



CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

Limited Attendance Pre-Convention Courses

Places still available – Register now

Saturday, August 20



James Cottone, DMD, MS
San Antonio, Texas
9:00 – 12 noon
1:00 – 4:30 p.m.

Infection Control and Dentistry: The Challenge of Hepatitis and AIDS

Each of the following six areas of infection control will be independently discussed during this program: patient screening, personal protection, instrument sterilization, surface and equipment disinfection, aseptic technique and laboratory asepsis. The emphasis will be on technique selection and product evaluation. A review of the currently available infection control guidelines will be included. Handouts appropriate for a dental office infection control manual will be available.

Sunday, August 21



William Becker, DDS
Tucson, Arizona
9:00 – 12 noon
1:00 – 4:30 p.m.

Changing Concepts in Periodontal Therapy: Scaling and Root Planing Isn't Enough

The program will cover diagnosis of periodontal diseases, a simplified method for periodontal charting and the role of scaling and root planing in the periodontal treatment plan. Recent research has shown that it may be possible to detect periodontal diseases using various diagnostic tests. The relevance of these tests to the dental practitioner will be discussed. Surgical procedures which are necessary for restorative dentistry will be discussed. The afternoon session will be devoted to discussing periodontal maintenance, the role of anti-microbials in periodontal therapy and periodontal regenerative procedures. The presentation will be enhanced by dual projection audiovisual slides.

Exclusive Air Canada Travel Reservation Service

Our meeting is registered with Convention Central, Air Canada's exclusive reservations service for Convention delegates. Benefits include:

Convention Fare: Save at least 20% with the new Convention fare available only through Convention Central. Should you qualify for other fares that represent greater savings, your reservations will be confirmed at the lowest available rate. (Certain advance purchase conditions apply.)

Car Rental: If you like the convenience of a rental car when you arrive, Air Canada has arranged an attractive convention rate with Tilden, available only through Convention Central.

To Reserve: Call the toll-free number below and identify yourself and your meeting. If you customarily use a corporate travel department or travel agent, have them call on your behalf.

Call: 1-800-361-7585

Weekdays 9:00 a.m. to 8:00 p.m. EDT/EST

Exhibits

More than 160 booths have been sold featuring a wide range of dental products and services.

Spouses' & Children's Program

Special programs have been planned for spouses and children (preferred ages 5-14). Highlights of the spouses' program include a luncheon with guest speaker Naomi Rhode and shopping at the West Edmonton Mall, a Family Fun Brunch and High Tea at the Muttart Conservatory.

The children's program features a tour of the zoo, Space Science Centre and Fort Edmonton Park plus a Family Fun Brunch.

Office Personnel

Register your office personnel and dental staff to attend the 1988 CDA Convention. All dental staff can attend CDA scientific sessions and exhibits for the low price of \$50 per person.

CDHA & CDAA Events

For information on programs being offered by the Canadian Dental Hygienists' Association and Canadian Dental Assistants' Association, contact each respective association.

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

CONVENTION AT A GLANCE

Monday, August 22

8:30 a.m. – 11:00 a.m.

K.J. Paynter Memorial Symposium
Craniomandibular Function and Dysfunction
Room 2

Dr. Frank Spear
Esthetics
Room 4

Jennifer de St. Georges
Personnel Survival Seminar
Room 8

Grieve Memorial Lecture
Dr. Ron Roth
Room 3

Mr. Ray Purdy, LLB
Dentistry and the Law
Room 5/6

11:00 a.m. – 12:00 noon
Murray MacDonald Lecture
Knowlton Nash
Room 12

12:00 noon – 2:00 p.m.
C.D.A./A.D.A.
AWARDS LUNCHEON
Featured Guest Speaker the Original
"Top-Gun" Randy Cunningham
Exhibit Hall C

2:00 p.m. – 4:30 p.m.
K.J. Paynter Memorial Symposium
(Continued)
Dr. Frank Spear
(Continued)
Jennifer de St. Georges
(Continued)
Mr. Ray Purdy, LLB
A.M. Presentation
Repeated

8:30 a.m. – 11:30 a.m. – 2:00 p.m. – 4:30 p.m.
8:30 a.m. – 11:30 a.m. – 2:00 p.m. – 4:30 p.m.
Projection Clinics – Rooms 15 and 16
Table Clinics – Exhibit Halls A and B (P.M. only)

9:00 a.m. – 6:00 p.m.

Tuesday, August 23

8:30 a.m. – 11:30 a.m.

Implant Symposium
Surgical and Prosthetic Considerations
Room 2

Dr. B. Dolansky
Endodontics
Room 4

Naomi Rhode
Practice Management
Room 8

Dr. Ed Sauer
Capitation
Room 5/6

Robert Sydenham, MCTA, MCP, MAPTA
Low Back Pain
Room 3

12:00 noon – 2:00 p.m.
OPEN LUNCH

Lunch Available in
Exhibit Halls
A & B

2:30 – 4:30 p.m.
Implant Symposium
(Continued)
Dr. B. Dolansky
A.M. Presentation Repeated
Naomi Rhode (Continued)
Dr. Ed Sauer
A.M. Presentation Repeated
Robert Sydenham, MCTA, MCP, MAPTA
A.M. Presentation Repeated

9:00 a.m. – 6:00 p.m.

Exhibitors – Exhibit Halls A and B

Wednesday, August 24

8:30 a.m. – 11:30 a.m.

Dr. Bryce Larke
AIDS
Viral Hepatitis
& Dentistry
Room 3

10:30 a.m. – 1:00 p.m.

FAREWELL
BRUNCH



9:00 a.m. – 12:00 noon

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988

EDMONTON, ALBERTA

HIGHLIGHT EVENTS

In addition to a top notch Scientific and Social Program, the Convention includes other highlight events, featuring outstanding speakers of international stature.

Grieve Memorial Lecture



Ronald H. Roth, DDS, MS,
FACD, FICD

Ronald H. Roth, DDS, MS, FACD, FICD, who conducts an exclusive practice in orthodontics in San Mateo, California, will be the presenter of the 1988 Grieve Memorial Lecture on Monday, August 22.

The title of his lecture will be "The Specifics of Orthodontic Treatment Goals".

Included in his presentation will be the criteria for dental

esthetics from the standpoint of tooth morphology and tooth position. Also included will be the criteria for an ideal functional occlusion and for pleasing facial esthetics.

Dr. Roth, who received his DDS from Northwestern University and his MS in Oral Biology and specialty in Orthodontics from Loyola University in Chicago, is currently on the faculty of the University of California's Department of Oral and Maxillofacial Surgery; Director of the University of California's Ortho-Gnathology Study Group; Diplomate of the American Board of Orthodontics; Charter Member of the International Academy of Gnathology, and Chairman of the Orthodontic Division at the Foundation for Advanced Continuing Education.

He has lectured throughout the United States, Canada, Mexico, Europe and Japan. He is a past president of the Central Section of the Pacific Coast Society of Orthodontics and was formerly on the faculty of both the University of the Pacific (Postgraduate Division) and the University of California's Department of Growth and Development.

RCDC Symposium

The Royal College of Dentists of Canada's biennial Symposium, on the subject of "Cranio-mandibular Function and Dysfunction", will be held on Monday, August 22.

The format of the all-day session will be several relatively short presentations, covering as many aspects of craniomandibular function and dysfunction as possible.

A wide range of Canadian authorities in this field will present.

Among the presenters will be:

Dr. Norman R. Thomas, of the University of Alberta, Edmonton, who will speak on: "The Effect of Fatigue and TENS on the EMG Mean Power Frequency";

Dr. David Mock, University of Toronto, on the subject: "Differential Diagnosis of Facial Pain";

Dr. H.C. Tenenbaum, University of Toronto, speaking on: "Diagnosis and Management of TMJ Dysfunction";

Mr. Martin Parfit, of Edmonton, who will present on: "Indications and Contraindications for Physiotherapy Intervention in the Treatment of TMJ Patients";

Dr. Colin Price, of the University of British Columbia, Vancouver, on: "Magnetic Resonance Imaging and its Diagnostic Value in the Management of TMJ";

Dr. Terry Carlyle, of Edmonton, on: Multidisciplinary Teamwork Approach to Occlusion-Related TMJ Problems";

Dr. Michael Pharoah, of the University of Toronto, on "The Diagnostic Contribution of TMJ Arthrography";

Dr. Frances Greenwood, the University of Toronto, will speak on: "Mandibular Dysfunction and Prosthodontics", and,

Dr. E. Wayne Tunis, of Edmonton, will present on: "Surgical Considerations of TMJ Disorders".

There will be five additional 15-minute presentations.

Murray McDonald Lecture



Knowlton Nash

Another highlight in Monday's events will be The Murray McDonald Memorial Lecture, sponsored by the Canadian Fund for Dental Education.

Knowlton Nash, Chief Correspondent and Anchorman of CBC-TV's "The National" newscast from November 1978 to May of this year, will speak on the subject "History on the Run".

The title is that of his most recent book, which is about his years as a foreign correspondent.

Implant Symposium

On Tuesday, August 23, an Implant Symposium will be conducted all day.

Dr. Gerald Baker, Head, Section of Oral and Maxillofacial Surgery, Mount Sinai Hospital, Toronto, will present on the topic "A Surgeon's Perspective of the Branemark Osseointegration Technique."

Dr. Aaron Fenton, Associate Professor of Prosthodontics, Faculty of Dentistry, University of Toronto, will speak on "The Impact of Implants in Dentistry."

Dr. James M. Plecash, Professor, Oral Diagnosis and Radiology, Faculty of Dentistry, University of Alberta, will present on the subject, "Periodontal Considerations of Implants."

The morning session is scheduled from 8.30 to 11.30 a.m.

In the afternoon session, beginning at 2.30 and continuing to 4.30 p.m., all three presenters will conduct a panel discussion on the subject of implants in dentistry.

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

CDSPI – day-long presentations

The CDSPI will offer a very high profile presence at the Convention.

There will be day-long presentations on the theme: "CDSPI, Your Service Corporation," on Tuesday, August 23.

Specifics of the three main areas of service provided for the dental profession in Canada, will be presented. These will explain the Canadian Dentists' Insurance Program, the Retirement Savings aspect and the new CDSPI Dental Office Management System.

The presentations will be open to all members of the dental team.

In addition to the presentations, CDSPI is mounting its largest ever exhibit display at the Convention, and will also provide the Message Centre service for delegates.

CDA Convention Message Centre

CDSPI is pleased to provide the CDA Convention Message Centre for your convenience. To enable your office and family to contact you at the Convention, leave them this Telephone Number:

403-426-1229

While you're there, be sure to visit CDSPI at Booths 51 to 53 for the latest information on:

- the Canadian Dentists' Insurance Program
- the CDA Retirement Savings Plan
- CDSPI's new Dental Office Management System. . .
- . . . and more!

U.S. Navy air ace to speak

The speaker at the Monday Awards Luncheon is Cdr. **Randy Cunningham**, a much-decorated veteran of the Vietnam conflict, who will use as his theme – "Team Work".

Cdr. Cunningham, who flew more than 300 missions, was not only awarded top military decorations by his own United States Government, but was also the recipient of South Vietnam honors. He later was instructor at the United States Navy's Fighter Weapons School ("Top Gun").

More recently, he was the real life model for the movie "Top Gun".

He is presently a college dean at an American University.

He notes that "the most essential part of being a team player is knowing what the assignment is and to be willing to execute it to the best of your ability. At times this means sacrifices on the part of the individual for the success of the team".



"Fantasyland", in the West Edmonton Mall. (Photo courtesy of Regional Economic Expansion, Government of Canada).

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

GENERAL INFORMATION

REGISTRATION

Registration begins Sunday, August 21 at 12:00 noon
in the Main Foyer
Lower Level of the Edmonton Convention Centre.

REGISTRATION HOURS

Sunday, August 21 12:00 noon – 7:00 p.m.
Monday, August 22 8:00 a.m. – 5:00 p.m.
Tuesday, August 23 8:00 a.m. – 5:00 p.m.
Wednesday, August 24 8:00 a.m. – 10:30 a.m.

REGISTRATION FEES

Alberta Dentists	— Included in Licence Fee —
Members of C.D.A./A.D.A.	\$150.00
(American/Foreign)	
Non Members	225.00
(Includes: C.D.A. Exhibits, Scientific Sessions, Monday Luncheon)	
Technicians	50.00
Office Personnel	50.00
(Includes All Dental Staff)	
Guest/Non-Dental Personnel	50.00
Students	NIL
(All of Above Include: C.D.A. Exhibits and Scientific Sessions)	
Spouses	50.00
(Includes: Exhibits and Scientific Sessions)	
Other Activities:	
Monday, August 22 — Fashion Show and Luncheon	
Fantasyland Hotel, West Edmonton Mall	
Featuring Naomi Rhode — Topic:	
Say Yes To Living	
Tuesday, August 23 — Family Fun Brunch	
Tuesday, August 23 — High Tea and Tour	
Muttart Conservatory	
Children's Program	15.00
(Suggested for Ages 5-14 Years)	
(Includes: Registration Roundup)	
Other Activities:	
Monday, August 22 — Tour Day and Lunch	
(Zoo, Space Sciences Centre and Fort Edmonton Park)	
Tuesday, August 23 — Family Fun Brunch	
Fun Run — Sunday, August 21	15.00
Includes: 3.1 km Fun (Walk, Jog) Run	
6.2 km Road Race	

YOUR CONVENTION COMMITTEE

Dr. Herb Link	General Chairman
Dr. Ted Zukiwsky	Scientific Chairman
Dr. Paul Schuller	Social Chairman
Dr. Brad Richens	Registration Chairman
Mr. Don Winget	Exhibits Chairman
Mrs. Florence Ingham	Accommodations Chairperson
Mrs. Corrine Mather	Spouses Program Chairperson
Dr. Ed McIntyre	Promotion and Publicity Chairman

The Farewell Brunch
Wednesday
August 24

10:30 a.m. to 1:00 p.m.

Everyone Registered

Is Invited

Spouses — family members

Freebies

will be provided

The Convention Committee wishes to thank the many suppliers that have taken booth space within the Exhibit area.

Special thanks to Butler, Nobelpharma Implants, Aurum Ceramics, Medi-Dent Service, CDSPI and Warner-Lambert for their contributions to the Program of the Convention.



CONVENTION HOTEL LOCATION

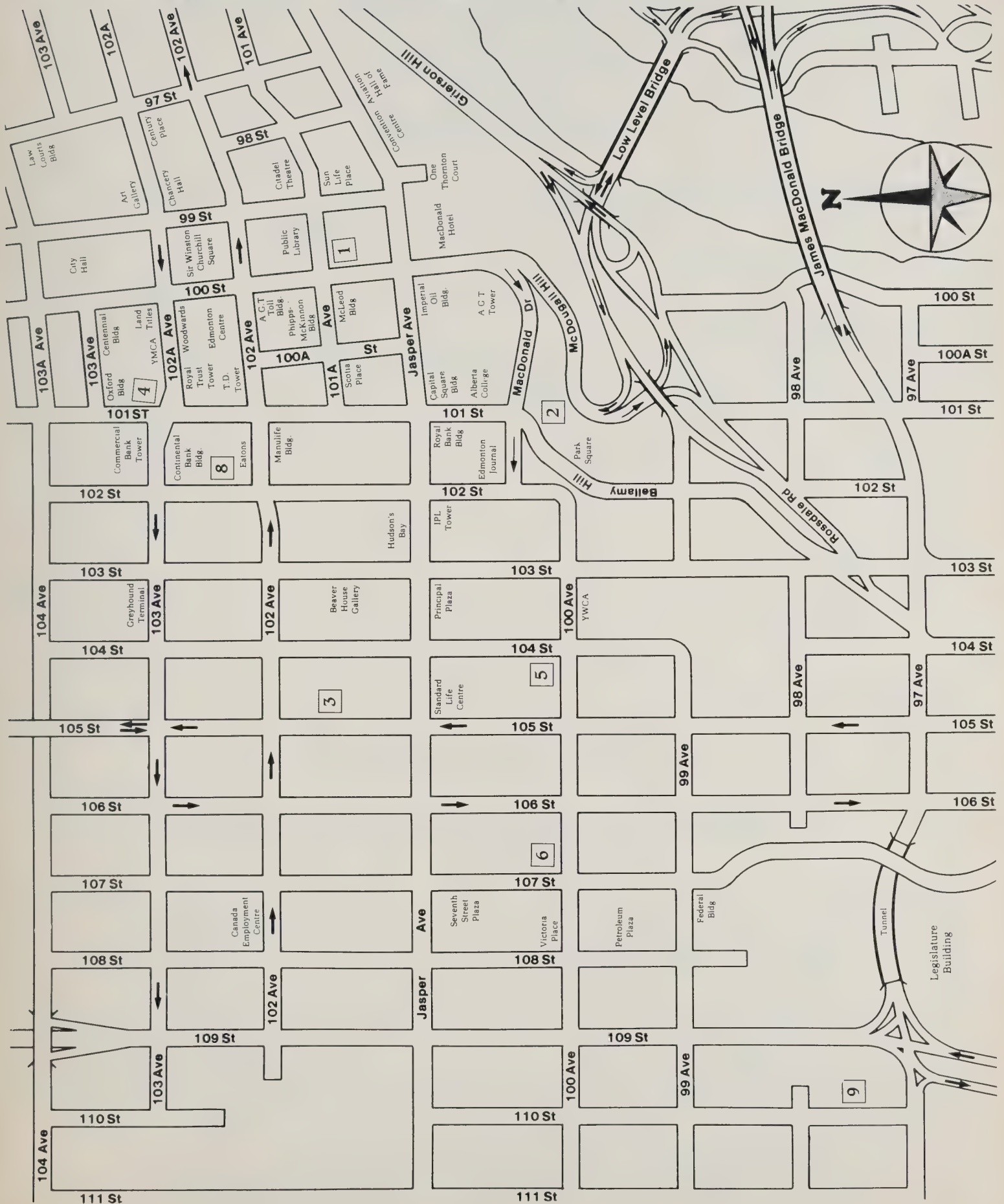
(See map opposite)

- | | |
|---|---|
| 1. Westin Hotel (CDA headquarters) | 6. Holiday Inn |
| 2. Chateau Lacombe (CDHA & CDAA Headquarters) | 7. Fantasyland Hotel (at West Edmonton Mall — beyond scope of this map) |
| 3. Ramada Renaissance | 8. Centre Suite |
| 4. Four Seasons | 9. Tower on the Park |
| 5. Sheraton Plaza (Exhibitors' and Technicians' Headquarters) | |

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

MAP OF DOWNTOWN EDMONTON



CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

1988 CANADIAN DENTAL ASSOCIATION CONVENTION

(hosted by the Alberta Dental Association)

AUGUST 21 to 24, 1988
EDMONTON CONVENTION CENTRE
Edmonton, Alberta

ADVANCE REGISTRATION FORM

PLEASE PRINT: (one form per delegate, duplicate form if necessary)

NAME: _____
Surname First Name

ADDRESS: _____
Street/Box No. City Province
Postal Code Telephone (office) (residence)

PLEASE CHECK APPROPRIATE GROUP:

☐ Dentist ☐ Office Personnel/Staff ☐ Technician ☐ Spouse ☐ Non-dental/guest ☐ Student

PRE-CONVENTION COURSES — LIMITED ATTENDANCE (Full day courses)

Dr. James Cottone — Infection Control for Today's Health Hazards in Dentistry — Saturday, August 20

Dentists \$125.00
Office staff/other 50.00

Dr. William Becker — Changing Concepts of Periodontal Therapy — Sunday, August 21

Dentists 125.00
Office staff/other 50.00

CONVENTION REGISTRATION:

Dentists — members Alberta Dental Assoc. (due to annual levy) Nil
— members CDA/ADA (American)/foreign 150.00
— non-members CDA 225.00

INCLUDES: Exhibits, Scientific sessions, Monday luncheon

Technicians 50.00
Office Personnel (includes all dental staff) 50.00
Guest/non-dental personnel 50.00
Students Nil

ALL OF ABOVE INCLUDES: Exhibits and scientific sessions

Spouses 50.00

INCLUDES: Exhibits and scientific sessions (check if will attend)
Other activities: Mon. Luncheon West Edmonton Mall ☐
Tues. Family Fun Brunch ☐
Tues. High Tea and tour Muttart Conservatory ☐

Children's Program: 15.00 x

Names and ages: _____

INCLUDES: Registration Round-up plus: (check if will attend)
Monday — Tour day and lunch (zoo, Space Science Centre, Fort Edmonton Park) ☐
Tuesday — Family fun brunch ☐

SOCIAL EVENTS: (Convention Centre)

Sunday Evening — Registration Roundup 15.00
(with world famous SHUMKA DANCERS — early bird draw 8:30 p.m.)

Tuesday Evening — WESTERN NIGHT — Limited attendance (per person) 38.00

Monday Noon — CDA/ADA INAUGURAL LUNCHEON — Dentists only — If will attend check ☐ Nil
(After June 15th add \$25.00)

TOTAL

IMPORTANT: Make cheques payable to "Canadian Dental Association Convention".

Mail to: **Canadian Dental Association**

1988 CANADIAN DENTAL ASSOCIATION CONVENTION 1815 Alta Vista Drive Ottawa, Ontario K1G 2Y6

CANCELLATION POLICY: Cancellations received before August 1st, full refund. Cancellations after August 1st subject to a 25% administrative charge.
No refunds after August 15, 1988.

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

1988 CANADIAN DENTAL ASSOCIATION CONVENTION

(hosted by the Alberta Dental Association)

AUGUST 21 to 24, 1988

EDMONTON CONVENTION CENTRE

Edmonton, Alberta

HOTEL RESERVATION FORM

☐ Dentist Name _____
☐ Mr. Address _____
☐ Mrs. _____
(City) (Province) (Postal Code)
☐ Miss/Ms Telephone: _____ (Res) _____ (Bus.)

TYPE OF ROOM

☐ Single ☐ Double ☐ Twin ☐ Other _____

INDICATE FIRST THREE HOTEL CHOICES (Rates indicated single/double)

☐ Westin Hotel (C.D.A. Headquarters)	\$ 95.00
☐ Chateau Lacombe (C.D.H.A. & C.D.A.A. Headquarters)	65.00
☐ Ramada Renaissance	65.00
☐ Four Seasons	88.00
☐ Sheraton Plaza (Exhibitors & Technicians Headquarters)	69.00
☐ Holiday Inn	56.00
☐ Fantasyland Hotel (Theme Room Only)	175.00
☐ Centre Suite	65.00
☐ Tower On the Park	☐ 1 Bdrm - \$55.00 ☐ 2 Bdrms - \$70.00 ☐ 3 Bdrms - \$85.00

Deluxe rooms are available upon request. All hotels are within walking distance from the Convention Centre except Fantasyland Hotel and Tower On The Park.

Arrival Date: _____ Time: _____ Departure Date: _____

DEPOSIT: A \$75.00 deposit is required to guarantee the accommodation. Please make cheque payable to:
THE EDMONTON CONVENTION AND TOURISM AUTHORITY

— OR —

VISA # _____ MASTER CARD # _____

AMERICAN EXPRESS # _____ OTHER _____

EXPIRY DATE _____ SIGNATURE _____

PLEASE SEND DEPOSIT AND HOTEL RESERVATION FORM TO:

EDMONTON CONVENTION & TOURISM AUTHORITY
9797 JASPER AVENUE NO. 104
EDMONTON, ALBERTA, CANADA T5J 1N9

DEADLINE FOR RESERVATION: July 4, 1988, thereafter requests will be accepted on a room availability basis only. Rooms elsewhere are being held and will be assigned for those persons whose reservation requests are received after the allotment is consumed.

* * * PHONE RESERVATIONS WILL NOT BE ACCEPTED * * *

CANCELLATION POLICY: DEPOSIT REFUNDABLE UP TO 60 HOURS NOTICE.

* * * CONFIRMATION WILL BE SENT DIRECTLY FROM THE HOTEL * * *

CANADIAN DENTAL ASSOCIATION CONVENTION

**AUGUST 21-24, 1988
EDMONTON, ALBERTA**

SOCIAL PROGRAM

FUN RUN

Sunday, August 21 at 9:00 a.m.

3.1 km Fun (Walk, Jog) Run
6.2 km Road Race

To take place on a scenic, flat course around the University of Alberta Campus.
Shower, Change and Locker Facilities will be available.
There will be a special Race Momento for all participants
and Prizes to be awarded by a Draw following the Race.
Complete Information will be sent to those who have Pre-registered for this Event.

REGISTRATION ROUNDUP

Sunday, August 21 from 6:30 p.m. to 9:30 p.m.

To be held at the Convention Centre.
Entertainment this evening will include the world-famous Shumka Dancers.
The "Early Bird Draw", which is a Trip for Two to any Air Canada Destination in North America or Europe
will be held at 8:30 p.m.

**REMEMBER — You must be present at the Roundup to claim your prize.
Delegates, Spouses and Guests will be charged \$15.00 but Children come Free of Charge.**

OPEN EVENING

Monday, August 22

This is an Open Evening to either enjoy an evening in one of
Edmonton's fine restaurants with your family or
recall past experiences with your classmates at a Class Reunion.

WESTERN NIGHT

Tuesday, August 23

To be held at the Convention Centre.
Features Bobby Curtola and his Orchestra.
This evening will provide an opportunity to enjoy excellent Alberta Beef
in a casual, relaxed atmosphere.
Entertainment will begin immediately after your Prime Rib Supper with a Klondike Revue
and at about 9:00 p.m. Bobby Curtola will start the music.
Attendance is limited and the charge for this evening is \$38.00 per person.

EXHIBITS

A large number of Exhibitors are Exhibiting at your Convention.
Their location in Exhibit Halls A & B is very central and it is hoped that you will support the Exhibitors
who support your Convention.

The Exhibit Halls A & B will be open for the following hours:

Monday, August 22 9:00 a.m. – 6:00 p.m.
Tuesday, August 23 9:00 a.m. – 6:00 p.m.
Wednesday, August 24 . . . 9:00 a.m. – 12:00 noon

CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

CDA Fun Run

Sunday, August 21, 1988

TWO RUNS ARE PLANNED:

A 3.1k fun run, jog, walk for the entire family

A 6.1k road race

TIME: 9:00 a.m.

LOCALE: Physical Education Building, University of Alberta Campus

FEE: \$15.00 per person

Send completed application form and cheque payable to:

The Canadian Dental Association
FUN RUN
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Further information will be forwarded to all registrants prior to the race.

FUN RUN ENTRY FORM

Name _____
(Please Print)

Address: _____

T-Shirt Size:

☐ Small

☐ Medium

☐ Large



CANADIAN DENTAL ASSOCIATION CONVENTION

AUGUST 21-24, 1988
EDMONTON, ALBERTA

LIST OF EXHIBITORS

COMPANY NAME BOOTH NO.

A

A-dec Inc. 61
Alberta Community & Occupational Health —
Dental Health 19
Amadent 113
G.C. American & Pascal 151, 152
Anchor Implant Systems Inc. 32
Aseptico, Inc. 142
Ash Temple Limited 88, 89, 104, 105
Aurum Ceramic Dental Laboratories 96, 97

B

Belmont Takara Company Canada Ltd. . . 12, 13
Benson Medical Industries Inc. 103
Block Drug Co. 121
Brasseler Canada Inc.
Brasseler U.S.A. Inc. 148
Buffalo/Bolton Dental Manufacturing Inc. . . 35
John O. Butler Company 86

C

Canadian Dental Supply Alta. Ltd. 8, 9
CAPCAD Inc. 85
The L.D. Caulk Co. of Canada 107, 108
CDSPI 51, 52, 53
Central Dental Supply Co. Ltd. 95
Cerum Ortho Organizers 75, 76
Church & Dwight Ltd./Ltée 77, 78
Colgate-Palmolive Canada 146, 147
Collagen Corporation 118
Columbus Dental/Miles Inc. 128
Cooke-Waite Laboratories 62
Core-Vent Corporation 15, 16

D

Denco Canada Dental 115, 116, 117
130, 131, 132
Den-Mat Corporation 153
Den-Tal-Ez Inc. & Star Dental . . . 163, 164, 165
Dentawest Dental Supply Ltd. 150
Dentsply Canada Ltd. 54, 55, 56, 57,
58 and 59
Direct Dental Sales 160
Duro-Test Electric Limited 44

E

E. & L. Management Ltd. 98 and 99
Easy-Practice Dental Systems Inc. 174
Educom Systems 20
Encyclopaedia Britannica Publications Ltd. . . 74
Eurodent International of America
(Manufacturer) Ltd. 100, 101
Exan Computer Systems 119

F

First City Trust-Health Services Group 92
Frame-Master Dental Lab Ltd. 60
Frank W. Horner Inc. 122, 123

COMPANY NAME BOOTH NO.

G

Germiphene Company Ltd. 37

H

HCC Healthcare Communications Canada
Limited 157
HCC Hygenic Corporation of Canada Inc. . . . 26
Health Care Products Inc. 149
Healthco Canada Ltd. 124, 125, 126,
139, 140, 141
Healthfirst Corporation 173
Ho & Associates Computer Systems Ltd. . . . 106
Hoechst Canada Inc. 47
Hu-Friedy Mfg. Co. Inc. 40, 41

I

Inland Dental Dist. Ltd. 81
Inter-Dent (International Dental Supply Co.
of Canada) 112
Inter Pro 72
Inter-Unitek Canada Ltd. 136
Ivoclar-Vivadent Canada Inc. 69

J

Johnson & Johnson Inc. Dental Products . . . 30

K

Kaycor International Ltd. 79, 80
Kerr Canada 42
Kodak Canada Inc. 73

M

McNeil Consumer Products Company 66
M.D. Stationery Co-op Inc. 167
MDT Corporation 11
Medi-Dent Service 21, 22
Medigas Alberta Ltd. 84
Merrell Dow Pharmaceuticals 93
Midwest Dental Products Corporation 33
Modudent 48, 49, 50
Modular & Custom Cabinets Ltd. 38, 39
Money Dynamics Enterprises Ltd./
McClelland and Company 129
C.V. Mosby Co. Ltd. 29

N

Nobelpharma Canada Inc. 109, 120
Nordic International Inc. 158
Novocol Chemical Manufacturing of
Canada Ltd. 31

O

Ohmeda 83
Oral B Laboratories Inc. 94

P

Philips Medical Systems 68
Practice Sales Network 143
Premier Dental (Canada) Inc. 87

COMPANY NAME BOOTH NO.

Procter & Gamble Inc. 64, 65
Professional Practice Builders Inc. 71
Protec Orthodontic Laboratories Ltd. 43

R

Richardson Greenshields of Canada
Limited 63
Riker Canada Inc./3M 70
Rhône-Poulenc Pharma Inc. 171
Rocky Mountain Orthodontics Canada Ltd. . . 67
RS Fine Arts Dental Ceramics &
Gift Sensations 166

S

Safeguard Business Systems Limited . . . 91, 102
W.B. Saunders Company 111
Scherer Laboratories Inc. 133
Sci-Can Division of Lux &
Zwingenberger Ltd. 127, 138
Selectric Corporation 161
Semantodontics, Inc. 155
Shaw Laboratories Ltd. 90
Sherwood Medical Industries (Canada) Inc. . . 36
Shofu Dental Corporation 28
Siemens Electric Ltd. 4, 5, 6, 7
Sinclair Dental Co. Ltd. 135
Somerset House (Interplak (TM)
Distributor) 34
Space Maintenance Laboratories
Canada Ltd. 114
Sterling Orthodontic Laboratories Ltd. . . . 162
Sure Cast Dental Labs Ltd. 110

T

Teledyne Water Pik Canada 145
3M Canada Inc. 18
The Toronto-Dominion Bank 14
Trans Canada Dental Limited 134
Tri Hawk International Inc. 156

U

Union Broach/A Health-Chem Co. 168
The UpJohn Company of Canada 24

V

Van R/Cadco/Clive Craig 23
Vertical Technology Inc. 46

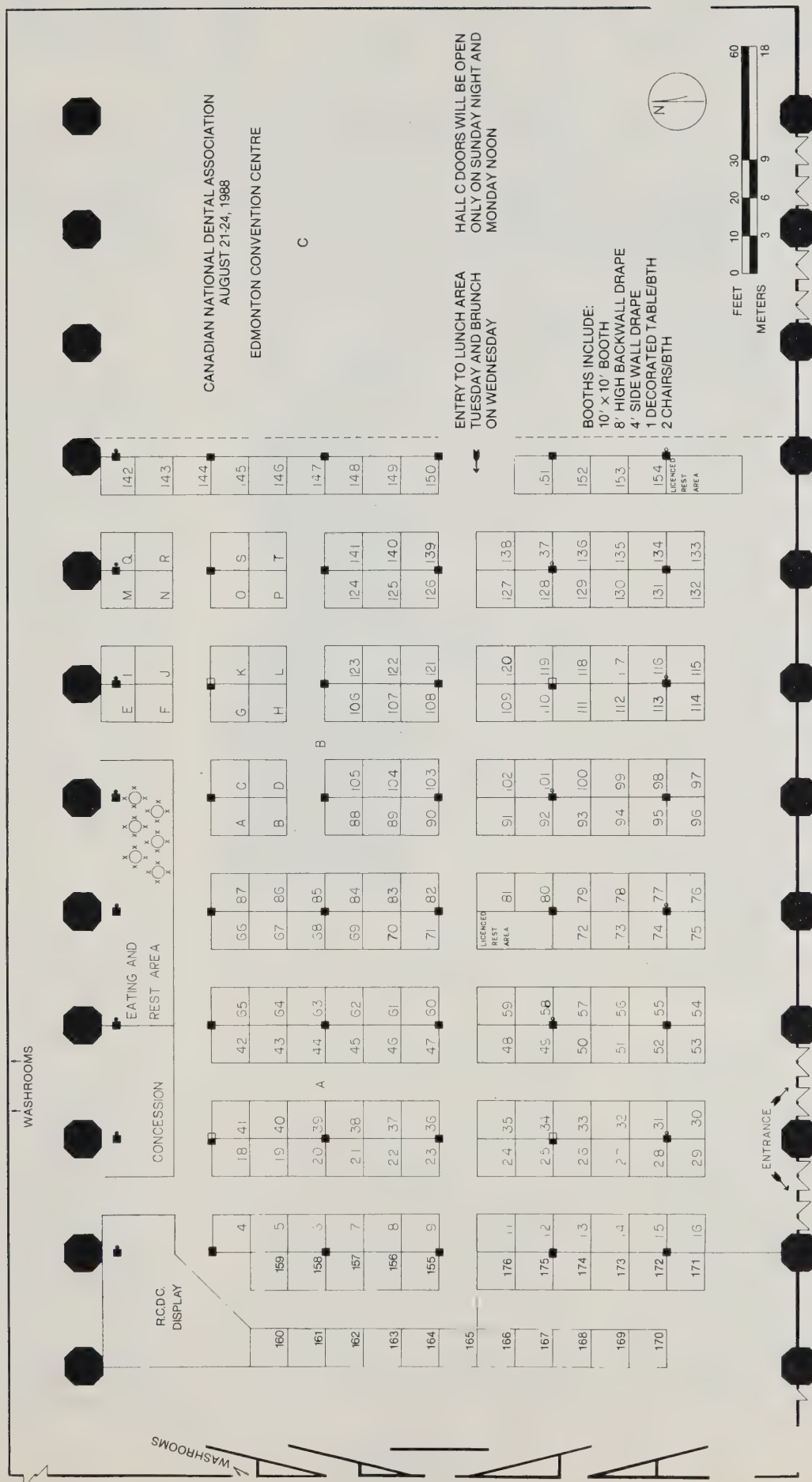
W

Warner-Lambert Canada 175, 176
Western Indisperse Sales 137
Whaledent International 45
Whitehall Laboratories Limited 27
Williams Dental Company of Canada 144
Wright Dental Canada Limited 82
Wrigley Canada Inc. 25

Z

Zadall Systems Group Ltd. 154

LOCATION OF EXHIBITORS



An all-time high number of the scientific papers presented at the 66th Annual Meeting of the International Association for Dental Research in Montréal were presented by Laval University Dental School staff members, graduate students or members of other faculties engaged in, or interested in, research in the realm of dentistry.

The total number of these presenters was 27.

La Groupe de Recherche en Écologie Buccale (GREB) conducted a three-day work session on "Recent development in the etiology and prevention of periodontal diseases and dental caries", following the IADR meeting in Montréal. World renowned guest speakers participated. They were: Bo Krasse from Göteborg University, Sweden; Thomas E. Van Dyke, Emory University, Atlanta, Georgia; G.J. Seymour, University of Queensland, Australia; Peter Gangler, Medizinischen Akademie Erfurt, Erfurt, DDR; J.S. van der Hoeven, University of Nijmegen, The Netherlands; Joëlle Ogier, Université Louis-Pasteur, Strasbourg, France, and Fabienne Ackermans, Université catholique de Louvain, Brussels, Belgium. △

The United States Surgeon General C. Everett Koop has taken an unprecedented move to slow the spread of AIDS.

His department has mailed an explicit pamphlet on how to avoid AIDS to every household in the United States.

When the booklet was shown to the media at a news conference, Health and Human Services Secretary Otis Bowen said the \$17 million AIDS project represents "the first time the (U.S.) federal government has attempted to contact virtually every resident, directly by mail, regarding a public health crisis."

Surgeon General Koop's photo appears on the cover of the pamphlet, and a brief message over his signature states in part: "Some of the issues involved in this brochure may not be things you are used to discussing openly. I can easily understand that. But now you must discuss them." △

The Faculty of Dentistry at the University of Western Ontario (UWO) is publishing a booklet on "AIDS Research in Dentistry" which will contain the highlights of an international multidisciplinary workshop held in October 1987. Papers from Dr. Norbert Gilmore, Chairman of the National Advisory Committee on AIDS; Dr. Colin Dawes, Editor of the Journal of Dental Research; Dr. J. Main, Head of the Department of Oral Pathology, University of Toronto; Dr. Hillar Vellend, Head of the Division of Infectious Diseases at Toronto General Hospital; Professor Crispian Scully, Head of the Dental School, Bristol, UK; and Professor Ion Inculcet, Head of the Applied Electrostatic Research Centre, Faculty of Engineering, UWO will be included. Additional funding of \$4,400 has been obtained from the National Health Research and Development Program (NHRDP) to cover publication costs. The total award to the Faculty of Dentistry, UWO, from the NHRDP is now \$27,600. The booklet may be obtained by writing to: Dr. G.M. McCarthy, Division of Oral Biology, Faculty of Dentistry, The University of Western Ontario, London, Ontario N6A 5C1. △

It doesn't look like a mouth, but it can bite, chew and emit saliva. The artificial mouth, a machine developed by researchers at the University of Minnesota, can simulate a year's worth of chewing wear and tear for an average mouth, in one day.

The mouth, developed to test new dental products, and examine chewing forces, operates with any number of its 32 teeth, even with an overbite. Artificial saliva, obtained from the State University of New York at Buffalo, is released into the mouth using tubes that act like the salivary ducts in the human mouth.

Scientists are using the device to determine how quickly teeth, filling material and tooth enamel, wear away; how grinding, rather than chewing, affects teeth; and how chewing ability declines

with age. The machine could make unnecessary the lengthy testing that manufacturers go through using real mouths to gauge the durability of their products, according to the director of the project. △

(ADA "UPDATE")

For some time there was debate as to whether the regulation of advertising by the College of Dental Surgeons of British Columbia was in violation of the Canadian Charter of Rights and Freedoms, because it restricts the dental practitioner's freedom of expression as guaranteed by the Charter.

In the spring of 1987, the issue came before the Supreme Court of British Columbia. That body reserved judgement on the matter until early this year.

The Court then ruled that commercial expression, such as advertising, is not protected by the Charter. Accordingly, it was held that the College of Dental Surgeons of British Columbia is able to regulate advertising and the use of trade names, by its members. △

Dr. J.E. Speck, who had served as Chairman of the Department of Periodontics, Faculty of Dentistry, University of Toronto, resigned earlier this year, and a reception was held in his honor.

Dr. Speck had been chairman since 1971 and offered strong leadership to the undergraduate and postgraduate areas. He is now enjoying a six-month sabbatical and will then return to the Faculty to continue his teaching duties.

The reception was attended by 70 members of the periodontal staff, spouses and postgraduate students. The affair was attended by Dr. C.H.M. Williams, one of the prominent pioneers of periodontics in Canada and a former chairman of the department at Toronto. The newly-appointed Chairman, Dr. R.P. Ellen, was also among those present. △

Dental Awareness Program Update

Bob & the 5 Point Prevention Plan KEEP CANADA SMILING

Dental Health Month 1988 was a great success. The CDA introduced a vital new addition to the prevention-message, the *5 Point Prevention Plan*, Bob and his collection of positive and upbeat *Keep Smiling* theme materials.

With the momentum building, we're going to keep the theme and materials fixed for 1989. Plans are already afoot to make next year's national promotions the biggest and best ever!

Bob made an impact at all levels — in the dentist's office, the media, the community and the home. The new DHM promotional and information items are a real hit; Bob balloons (big and small) and assorted *Keep Smiling/5 Point Prevention Plan* materials greatly enhance offices, displays and media opportunities at every chance. The information in the *5 Point Prevention Plan* and the *Keep Smiling* message has also proven to be an excellent resource for dental health spokespeople.

This year, the Honourable Jake Epp, federal Minister of Health & Welfare helped to officially launch the dental health month campaign. A picture of the Minister with a smiling Bob was sent out to the media and community organizers nationwide.

Media response on a national level was very good. It included pick-up by Canadian Press Wire (that goes directly to every editor's desk). Two major radio networks carried features about the *5 Point Prevention Plan* and the occasion of the launch of Dental Health Month 1988. Community and daily newspapers in most cities covered the dental health issue; radio and television stations in almost every province used the month to interview various dental experts and often invited audience participation. The two new radio commercials featuring "Bob and the 5 Point Prevention Plan" flooded the airwaves right across the country.

The Annual Children's Poster Contest was run again, involving schools, public health units, sponsors and donors.



Dental Health Month gets underway. Federal Health Minister Hon. Jake Epp (L), meets "Bob", the star of the Canadian Dental Association's (CDA) April Dental Health Month "Keep Smiling" campaign. "Bob" has been seen across Canada promoting the CDA's '5 Point Prevention Plan' of personal dental care. Introducing Bob to the minister is CDA Executive Director, Jardine Neilson (R).

Armed with the *5 Point Prevention Plan*, the students created posters that best answered the question, "What Keeps Bob Smiling?"

As of this writing, reports were *starting* to come in from the provincial level and their component dental societies. We would like to share some of their successes and innovative ideas with you:

Provincial Smiles — Coast to Coast

B.C. created new dental health displays for children, adults and seniors which toured the province, making excellent use of the educational, promotional and

photo opportunities that these attractions presented. To enhance the display, the College's DHM committee produced a videotape on cosmetic, periodontal disease and prevention. And a series of 8 radio commercials were produced to air throughout the month.

Manitoba ran a very successful *What Keeps Bob Smiling* poster contest to select entries for submission into the national contest. 5000 posters were received from students at 600 schools across the province. The posters each illustrated what the students thought kept Bob smiling. This annual event proved to be a fun and active introduction to dental health.

An innovative approach to consumer research was undertaken during April. 206 pharmacies were each sent 100 questionnaires. The survey will help uncover what Manitobans know and understand, and think and do about dental health and dentistry. Response has been excellent and we eagerly await the final results which will be distributed in the form of media releases.

Ontario collaborated with a computer company to produce their first computerized 'Dental Health Fitness Test' — participants were able to have a computer-analysis of their oral health done at numerous locations throughout Dental Health Week. In conjunction with the province's public health units and a camera company, the annual Poster Contest brought the question "What Keeps Bob Smiling?" to the schools again this April. And from the Blue Jays' point of view, Bob was 'batting 1000' on the ODA's Dental Health Day — 25,000 fans received packets filled with items donated by corporate sponsors.

Quebec, in conjunction with Groupe Jean Coutu drugstores, conducted *The Smiling Test*. By asking people, "Does your smile pass the test?", the public worked through their dental care habits — 250,000 kits containing dental health care products were given away to participants.

Johnson and Johnson's "Reach for a Healthy Smile Contest" also wrapped up in April. Since January, students have submitted photos of smiles and accompanying slogans. The winners were chosen after being on display at the Salon de la Jeunesse.

Let's keep the momentum going

These are just a few highlights of the many successfully run activities that helped make April a great success. As we hear of more we will pass them along to you to help you to get an early start on next year's preparations. If you have success stories of your own, new and different events to report, or an idea that could really take off in '89. . . please write us and let us know so that we can ignite and inspire next year's DHM planning committees from Vancouver to St. John's.

And remember, it's important to keep a good supply of patient education materials on hand all year long. If you have run out of Bob materials, the 5 Point Prevention Plan or any of the CDA's top-quality materials, simply write

or call (telephone orders accepted with VISA or Mastercard only) us to re-order.

The address is:

CDA Order Section
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6.

Or phone us at: (613) 523-1770

First Teeth Moves in

The Canadian Dental Association would like to thank all of you who have participated in the launch of First Teeth. The launch of the program is unquestionably the *Dental Awareness Program's* single-most successful programming event to date. In fact, over 70 per cent of the profession has taken part in this, the DAP's first integrated program targeted at parents of children up to nine years of age.

Initially, the materials were made available free-of-charge courtesy of Colgate-Palmolive. But, as the program becomes

an on-going effort of the Dental Awareness Program, some changes are going to be made. The CDA will now assume complete responsibility for the production and distribution of the program to the dental profession and health educators.

To enable an efficient and cost-effective transition, the CDA will be charging an appropriate fee for the program's core materials — the office kit, the office poster, the booklet and the growth chart.

Colgate will continue to sponsor First Teeth in years two and three with \$500,000 annually to sustain and expand the program — full details to come.

We encourage you to continue to take part in the program. An easy-to-use form will be sent to each dental office or may be obtained from the CDA order Section (address above).

Again, thank you for your participation. Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	May 31, 1988	April 30, 1988
<i>Fixed Income Fund</i>	60.68766	60.19975
<i>Common Stock Fund</i>	12.95931	13.63701
<i>Money Market Fund</i>	40.52184	40.27279
<i>Balanced Fund</i>	24.40966	24.80281

Interest rates:

Guaranteed Fund Term	*Interest rates as at	
	May 31, 1988	April 30, 1988
1 yr	9.20%	9.15%
2 yr	9.45%	9.35%
3 yr	9.70%	9.65%
4 yr	9.80%	9.80%
5 yr	10.10%	10.10%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

May 31, 1988	April 30, 1988
\$92,784,448	\$93,768,226

For further information:



CDA RSP

Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

A TEXTBOOK OF ORTHODONTICS

W.J.B. Houston
W.J. Tulley

Bristol: IOP Publishing 1986

On first examination of the "textbook", one cannot help but feel that insofar as our North American experience is concerned, this should be classified as a handbook and not a text. The format and actual size of the book fall into the former category.

The book is divided in the traditional manner of orthodontic texts with the initial chapters devoted to growth and development, diagnosis and treatment planning and then examples of various malocclusions using essentially the traditional Angle Classification. A small chapter is devoted to the biology of tooth movement and then the appliance section is divided into removable, fixed and functional appliances. The chapters on oral surgery and craniofacial anomalies are in fact each larger than any of the appliance sections.

In reading the book one gets a general overview of the current knowledge of orthodontics without the detailed descriptions and in-depth analysis of North American texts. The book seems to be intended as a reference for undergraduate dental education. This is borne out by the following:

The section on removable appliances is larger and more extensive than that on fixed appliances. As well, the cover of the book depicts a headgear attached to a removable appliance.

Whereas serial extraction is a topic that is covered rather briefly in the section on treatment planning, one finds that the pitfalls and problems that are associated with this procedure are not discussed. This is one of many examples of the cursory attention given to certain approaches to treatment which are often really not entirely what they may appear to be.

Certain omissions are apparent as for example in separating posterior teeth prior to banding. A photograph shows the different methods available, but omits the most common method in use presently.

As an undergraduate text for North American teaching, this book fails in a number of areas. However it serves as a good library reference and backup for information on removable appliances. Δ

This book was reviewed by:
Dr. Michael Rennert
Director — Division of Orthodontics
McGill University — Faculty of Dentistry
Montréal

CONTEMPORARY ORTHODONTICS

William R. Proffit,
Henry W. Fields,
James L. Ackerman,
Paul M. Thomas,
J.F. Camilla Tullock

1400 illustrations, 579 pages,
The C.V. Mosby Company, 1986.

This magazine-sized manuscript has been printed with high quality binding and paper. The photographic illustrations from faces to teeth to radiographs are professionally clear with excellent black and white composition. You flip the pages and observe eye-catching red and black figures and tables. It is the use of many shades of red with black in the diagrams and use of black and red in the cephalometric tracings and the tables that has introduced a striking innovative improvement in the art work layout.

The "state of the art" contents of this well-organized text cover all topics of orthodontic information, often developing controversial issues from their historic past and reasoning the pros and cons where applicable, and presenting them as rational conclusions. This makes for interesting reading.

The material is organized to follow the sequence of curriculum content developed by the American Association of Dental Schools. Think of the general arrangement of Dr. Moyer's text, with some major updating. The text covers the theories of growth and development, etiology of malocclusion through current diagnostic procedures, the problem solv-

ing method, and treatment planning. It includes the latest on orthodontic wires, force control, the physiology of tooth movement, and an updating of bonded fixed appliances and European removables.

The above covers one-half the book and the theory meets the needs of all dentists. Where applicable, all chapters run from the basic principles designed for the undergraduate student and the final portion of the chapter continues with more complex information necessary for the graduate orthodontic student.

The coverage of the second half of the text is impressive, timely and useful to both generalist and specialist and focuses on treatment. There are two chapters written with the generalist primarily in mind. They cover non-skeletal problems in the mixed dentition (preadolescent children) using lingual arches, expansion screws, arch wires and bonded brackets. The second chapter covers the first stage of treatment for preadolescent (mixed dentition children) who have skeletal problems whom you could help with extraoral traction or functional appliances. The text suggests that these patients will need a second stage of treatment with fixed appliances.

Then the authors cover the three stages of comprehensive straight wire treatment in the early permanent dentition intended for the graduate student: (1) leveling and alignment, (2) correcting molar relationships, space closure, (3) and finishing.

Of special interest to the generalist in the second half of the book is a chapter on retention, and sections on (1) molar uprighting, (2) vertical extrusion for crown restorations and (3) diastema closure. The text is completed by chapters on adult and surgical orthodontics.

One final bit of advice, you are given sequences and principles, not recipes for treatment. You will have to think and formulate your individual treatment plans and prescriptions. This text will complement your understanding of continuing education courses in orthodontics.

In conclusion, this book is so well written and comprehensive that it is likely to be the "standard work" for some time to come. I am sure all dentists who are sincerely interested in the competent

practice of orthodontics will share my view that this text will prove to be an extremely valuable source of essential orthodontic information that will help you improve your orthodontic diagnostic and treatment planning skills. It is a must! Δ

This book was reviewed by:
Dr. T.E. Spracklin
Associate Professor
Division of Orthodontics
Dalhousie University
Halifax, N.S.

CLINICAL ANATOMY FOR DENTISTRY

R.B. Longmore, D.A. McRae

Academic Press Canada, Don Mills, Ontario
153 pages
\$29.50

According to the authors, the aim of this book is to stress to the preclinical and clinical student, and to the qualified practitioner, that an understanding of anatomy is relevant and important in clinical dentistry. There is no question that this is so but a knowledge of anatomy is also crucial to an understanding of the other basic sciences such as physiology which, in turn, are equally important and relevant in clinical dentistry. "Clinical Anatomy for Dentistry", unfortunately, concentrates solely on facial and pharyngeal anatomy and disregards areas that are not in the immediate field of the dentist but are of importance in the total management of the patient. At the very least, a basic coverage of the thorax should have been included.

The preface states that the book is neither a detailed textbook of anatomy nor does it encompass all aspects of clinical dentistry. These facts are painfully obvious upon reading the text and the immediate question is, "Where does this book fit in a dental curriculum, or in a graduate's personal library?". The answer upon reading through the preface and the remainder of the text remains obscure. Within the chosen scope of this endeavour, the book contains a number of faults and several chapter-by-chapter examples follow that prompted this criticism.

Chapter one deals with osteology of the skull but does not include descriptions or illustrations of the cranial base and its various foramina and in the discussion of the individual bones, only the temporal and sphenoid bones and the maxilla and mandible are singled out for illustration.

The remainder of the bones are described only. Descriptions without illustrations defy understanding.

In general, the diagrams that are used throughout the text illustrate the points made but attempts at simplicity occasionally go too far. Maxillary molar teeth in chapter 3, for example, are drawn with two roots; moreover, the nerve supply to these teeth is incorrectly shown as arising from the infraorbital nerve and passing along the lateral wall of the maxillary sinus to the root apices. A subsequent chapter correctly describes the nerve supply as arising from the maxillary nerve and entering the posterior wall of the maxillary sinus through the posterior superior alveolar foramina. This concept is vital to anyone attempting a classic posterior superior alveolar nerve block.

Chapter four offers a description of each cranial nerve and a description to sequelae of cranial nerve lesions. There are no illustrations in this chapter despite the fact that neurology, particularly the autonomic nervous system, is traditionally the most difficult section to understand.

In chapter five, the arterial supply to the face is described as arising from the facial artery. Totally ignored are the significant contributions made by branches of the ophthalmic and maxillary arteries.

The sympathetic trunk in chapter 8 is described as lying within the carotid sheath; it does, in fact, lie posterior to the sheath. Postganglionic fibres of the trunk are then described as joining branches of the cervical and brachial plexuses. Actually they join the spinal nerves that form the plexuses. In a description of the pharynx, the nasopharyngeal tonsils are labelled "pharyngeal tonsils". This is incorrect for the lingual and palatine tonsils also reside within the pharynx.

A description of the temporomandibular joint in chapter nine disregards the nerve supply to the joint although it shares the same nerve supply as the external ear and meatus. This point is relevant clinically since pain from the joint may be misdiagnosed as an earache.

In chapter eleven, the authors state that subtotal or total loss of teeth can be restored only by the provision of full or partial dentures. Are fixed bridgework and possibly implants not alternatives?

Anaesthesia is covered in chapter 12 and here the buccal nerve is described as supplying skin and mucosa of the cheek but no mention is made of the supply to the mandibular vestibular gingiva. Subsequently the statement is made that anaes-

thetic solution deposited here (mandibular foramen) will result in anaesthesia of the lower teeth and gingiva and mucous membrane of upper and lower lip and chin. This is not true for the vestibular mandibular gingiva is supplied by the buccal nerve requiring a second injection and the lingual gingiva is supplied by the lingual nerve. The same chapter deals with general anaesthesia and here an understandable fuss is made concerning the requirements of maintaining an open airway. No mention is made, however, of how the airway is maintained other than manipulation of the tongue and mandible. Nearly all intraoral operations performed under a general anaesthetic require intubation preferably nasotracheal intubation. This fundamental information should be crucial to a textbook dealing with clinically applied anatomy.

The radiographs of dried skulls used in chapter 15 give a false impression of cranial radiology. It is far better to use radiographs of actual patients despite the loss in clarity caused by superimposed soft tissue.

The authors suggest that this book be read in conjunction with more detailed books of anatomy and clinical dentistry. The limited scope and presentation of **Clinical Anatomy for Dentistry** preclude its usefulness in the undergraduate curriculum particularly in light of the heavy load borne by the dental student. Δ

This book was reviewed by:
Dr. Bernard Liebgott
Professor of Anatomy
University of Toronto

BONE REMODELING ORTHODONTICS BY JAW REPOSITIONING AND ALVEOLAR GROWTH

Leon Kussick

Published by
Quintessence Publishing Co. Inc.
Chicago, 1987
284 pages

This book documents twenty-seven years of the author's clinical experience using the bone remodeling appliance system which, in the author's words, is in reality a fixed removable orthodontic appliance. As such, the appliance represents the author's variation and adaptation (modification) of other functional appliance systems. The book documents his technique for mandibular bite registration,

continuous equilibration into centric relation and a masseter muscle relaxation technique for temporo-mandibular joint problems.

The appliance system used is considered by the author to be superior to fixed and conventional functional appliances because of its increased sturdiness, speed of action, patient profile control, and reduced wearing time, compared to conventional appliances. The book is essentially a series of case reports showing beautiful facial and occlusal results. These reports, however, suffer in that there are no cephalometric tracings, superimpositions or temporomandibular joint radiographs to document how the results were obtained, or the stability of the jaw unit relationships. The diagnostic system appears to be deficient and no cephalometric analysis is outlined in either the section on diagnosis or treatment planning. The book contains a chapter outlining the construction of the appliance. It also presents the author's method for simple and quick resolution of temporo-mandibular joint problems. However, the approach used appears to ignore the multi-factorial nature of the temporo-mandibular joint disorders.

In conclusion, the book is an interesting compendium of the author's orthodontic results as illustrated in case reports. The author's concepts and conclusions are based on clinical observations of 2,500 cases, and his experience in researching muscle physiology. The author, admits, however, that his conclusions are still "clinical hypotheses", and he notes he would welcome research and analysis to explain further the mechanisms and clinical responses that he has observed. Δ

This book was reviewed by:
Dr. Donald Woodside
Professor and Head
Dept. of Orthodontics
University of Toronto

DAVID DECIDES ABOUT THUMBSUCKING

by Susan M. Heitler

Reading Matters, Denver, Colorado, 1985, 47 pages, Illustrated

David Decides About Thumbsucking is composed of two sections, i) a motivating story for children and ii) an informative guide for parents.

The first section is a simple personal story for a five to nine year old child to read. It should give enough motivation

for the young reader to break the habit if they have been considering giving up the habit.

The second section contains comprehensive information in a question and answer format. Sufficient information is provided to relax the reader without unnecessary worrying. Emphasis has been put on the idea that parental guidance can have negative effects on the child. Emphasis has also been put on patience and employing a variety of ways to help children break the thumbsucking habit. On pages three and four, the effects of pacifier use and baby bottle caries are explained to the reader.

Secondary to providing parents with some strategy to combat thumbsucking, the book explains to the reader some dental terminology used with thumbsucking. Furthermore, some new information is introduced to the reader who may not be aware of the social and health consequences of thumbsucking. The reader is warned that the serious consequences of thumbsucking by six year olds and up are usually irreversible.

A behavior modification technique is introduced and explained further along in the book. The percentage of success of the behaviour modification technique is said to be very high but the percentage is not stated. In the last subsection, the fact that general concern, good humoured patience and persistence work best is emphasized again. The reader is warned that the habit of keeping something in the mouth may persist in the form of chewing on fingernails and pencils.

In summary, the first section is simple, straightforward and interesting and meant to be read by the child. It would also be appropriate for parents to read this section to their child since there is a lot of good information in this section. The second section is a bit too detailed and too complete for the average parent. The material is very well presented but could have been reduced in volume to make it more readable. It would be an excellent book to keep in one's practice to lend to patients (and parents) who present with this problem and who want to learn more about it. Δ

This book was reviewed by:
Billy Chiu
4th Year Dental Student
and David S. Richardson,
DDS, MS, FRCD(C)
Head
Division of Pediatric Dentistry
Dalhousie University
Faculty of Dentistry.

CORPORATION OF THE VILLAGE OF South River

Village of South River requires dentist immediately. Equipped office space provided. Incentive grant available. Excellent living and recreational facilities.

Interested dentists are invited to write or telephone collect to:

Mr. Gerald A. Hall
Clerk-Treasurer Administrator
Corporation of the Village of South River
209 Ottawa Avenue, P.O. Box 310
South River, Ontario, POA 1X0
(705) 386-2573



YOUR GIFT HELPS GROW FOOD

CARE®

Send your gift to - Care Canada
1312 Bank Street Ottawa K1S 5H7

Neoplasms

Les néoplasmes

(Package Libraries on CARIDEX are available from the library as well)

1. Andreasen, J.O. and others. "Oral health care: more than caries and periodontal disease. A survey of epidemiological studies on oral disease." *International Dental Journal*. Dec. 1986, v. 36, no. 4, pp. 207-14.
2. Baden, E. "Prevention of cancer of the oral cavity and pharynx." *CA Jan-Feb*. 1987, v. 37, no. 1, pp. 49-62.
3. Bouquot, J.E. and others. "Leukoplakia and carcinoma in situ synchronously associated with invasive oral/oropharyngeal carcinoma in Rochester, Minn., 1935-1984." *Oral Surgery, Oral Medicine, Oral Pathology*. Feb. 1988, v. 65, no. 1, p. 199-207.
4. Cataldo, E. and Santis, H.R. "A clinico-pathologic presentation. Epidermoid carcinoma." *Journal of the Massachusetts Dental Society*. Winter 1987, v. 36, no. 1, p. 6.
5. Cruse, C.W. and Radocha, R.F. "Squamous cell carcinoma of the lip." *Plastic and Reconstructive Surgery*. Dec. 1987, v. 80, no. 6, pp. 787-91.
6. Fadavi, S. and Punwani, I. "Oral fibromas in children: reports of two cases." *ASDC Journal of Dentistry for Children*. Mar-Apr. 1987, v. 54, no. 2, p. 126-8.
7. Fukada, Y. and others. "Malignant lymphoma of the oral cavity: clinicopathologic analyses of 20 cases." *Journal of Oral Pathology*. Jan. 1987, v. 16, no. 1, pp. 8-12.
8. Gambucci, J.R. "Oral health concerns in older adults. Assessment and treatment." *Postgraduate Medicine*. Mar. 1987, v. 81, no. 4, pp. 363-7, 370.
9. Graham, G.S., Brannon, R.B. and Houston, G.D. "Fibrolipoma of the gingiva. A case report." *Journal of Periodontology*. Feb. 1988, v. 59, no. 2, pp. 118-20.
10. Hell, B. and Freitag, V. "Lower lip carcinoma. Infiltration of the mandible along the mental nerve." *Journal of Craniomaxillofacial Surgery*. Feb. 1988, v. 16, no. 2, p. 76-9.
11. Helldén, L. and Jonsson, R. "A papillary verrucous lesion in the gingiva, developing into squamous cell carcinoma." *Journal of Clinical Periodontology*. Jan. 1987, v. 14, no. 1, pp. 56-61.

12. Hirshberg, A., Dayan, D. and Horowitz, I. "Dentinogenic ghost cell tumor." *International Journal of Oral Maxillofacial Surgery*. Oct. 1987, v. 16, no. 5, pp. 620-5.
13. Israel, H. "Early squamous cell carcinoma of the mouth, part I: clinical evaluation." *Compendium of Continuing Education in Dentistry*. Sept. 1986, v. 7, no. 8, pp. 563-4, 566-70.
14. Israel, H. "Early squamous cell carcinoma of the mouth, part II: diagnosis and management." *Compendium of Continuing Education in Dentistry*. Oct. 1986, v. 7, no. 9, pp. 616-8, 620, 622.
15. Jeffries, R.W. "Periodontal presentation of squamous cell carcinoma." *Journal of the New Zealand Society of Periodontology*. May 1986, v. 61, pp. 18-9.
16. Johnson, J.F. and Taybos, G.M. "The evaluation of sun-induced skin changes by the dentist." *Quintessence International*. Apr. 1987, v. 18, no. 4, pp. 273-6.
17. Landherr, L. and others. "Therapeutic results in gingival and buccal carcinoma." *Radiobiologia. Radiotherapia*. (Berlin) 1986, v. 27, no. 5, pp. 505-9.
18. Lawson, W. and others. "Inflammatory and neoplastic lesions of the oral cavity." *Clinics in Dermatology*. Apr-Jun 1987, v. 5, no. 2, pp. 43-58.
19. Ohya, T. and others. "Primary malignant melanomas of the oral mucosa." *International Journal of Oral Maxillofacial Surgery*. Aug. Oct. 1987, v. 16, no. 4, pp. 496-9.
20. Silverman, S. Jr. "Prevention, early detection and diagnosis of oral cancer." *Dermatologic Clinics*. Oct. 1987, v. 5, no. 4, pp. 675-80.
21. Shibuya, H. and others. "Multiple primary cancer risk in patients with squamous cell carcinoma of the oral cavity." *Cancer*. Dec. 15, 1987, v. 60, no. 12, pp. 3083-6.
22. Swan, R.H. "Odontomas. A review, case presentation and periodontal considerations in treatment." *Journal of Periodontology*. Dec. 1987, v. 58, no. 12, pp. 856-60.
23. Vedtofte, P. and others. "Surgical treatment of premalignant lesions of the oral mucosa." *International Journal of Oral and Maxillofacial Surgery*. Dec. 1987, v. 16, no. 6, pp. 656-64.
24. Vincent, S.D. "Clinical features of premalignant and malignant mucosal disease of the oral cavity." *Comprehensive Therapy*. Jun. 1987, v. 13, no. 6, p. 61-6.

25. Weir, J.C. and others. "A diagnostic and epidemiologic survey of 15, 783 oral lesions." *Journal of the American Dental Association*. Sept. 1987, v. 115, no. 3, pp. 439-42.
26. Yoshida, H., Akizvki, H. and Michi, K. "Intraoral ultrasonic scanning as a diagnostic aid." *Journal of Craniomaxillofacial Surgery*. Dec. 1987, v. 15, no. 6, pp. 306-11.

New Acquisitions

- Malamed, S.F. *Sedation: A Guide to patient management*. Mosby, 1985.
- Malamed, S.F. *Handbook of local anesthesia*. 2nd edition, Mosby, 1986.
- Cohen, S. & Burns, R.C. *Pathways of the pulp*. 4th edition, Mosby, 1987.
- Neidle, E.A., Kroeger, D.C. and Yagiela, J.A. *Pharmacology and therapeutics for dentistry*. 2nd edition, Mosby, 1985.
- Goaz, P.W. and White, S.C. *Oral radiology, principles and interpretation*. Mosby, 1987.
- McDonald, R.E. & Avery, D.R. *Dentistry for the child and adolescent*. 5th ed. Mosby, 1987.
- Mohl, N.D. and others. *A textbook of occlusion*, Quintessence, 1988.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5.00. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5.00 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherches bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982.

Téléphone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

Response: "System Software" letter

Clearly, the world of dental management software is rapidly evolving, improving and becoming more competitive. Because of these factors it is indeed a difficult field to scrutinize, even for specialists. Ross MacKillop, in his letter to the editor, V. 54, N. 4, responding to my article entitled *Dental Management System Software*, V. 54, N. 2, p. 93-99, is correct in pointing out that the systems tested, though the most up-to-date at the time of testing, were no longer the most current versions at the time the article was published. The 8 month interval between submission and final publishing of the article in this peer reviewed journal accounts for the discrepancy. Certainly, however, comparative, contemporaneous system evaluations are of value in determining relative standings between systems as well as providing information on the state-of-the-art in the field at the time of writing. I believe such critiques, carried out by independent individuals, are of significant value to the profession. In fact there is a need for further, more extensive studies.

I will not comment on the individual points expressed in the letter except to say that most can be explained by differences in semantics, versions compared or subjective beliefs. Before purchasing a computer system, you, the practitioner, should acquire information from all possible sources. An informed purchase decision is required if your system is to help in yielding the optimal level of financial and administrative health in your practice. Δ

David M. Kogon, BSc, DDS, MBA
Toronto, Ont.

Enjoyed 'Future of Biomaterials' article in JCDA

I have thoroughly enjoyed the article on "The Future of Biomaterials" (Can Dent Assoc J 1988; 54:163-173). The author is to be complimented for presenting the topic in such a lively and informative way. Only one comment applicable to Table I. "Thirty-two dental technological advances in the past 2.675 years" is in order so the error listed is not being perpetuated by future authors. It deals with amalgam.

The use of amalgam in dentistry was already known in China more than one thousand years earlier than the year 1825 given in the table. Dental amalgam as a silver dough is mentioned in the *Materia Medica* of Su Kung in 659 A.D. It is mentioned again in 1107, discussed in the Ming Period in 1505 and in 1596. Also the composition is given: 100 parts of mercury, 45 parts silver, and 900 parts of tin. In Europe the first recommendation of an amalgam for restorative dentistry is from southern Germany in 1528, (and again given in 1601 in the city of Lünenberg) — approx. three hundred years before its introduction in France. Δ

Dr. Oskar Sykora
Faculty of Dentistry
Dalhousie University
Halifax, N.S.

'Kind collaboration'

We would like to express our deep appreciation and gratefulness regarding the continuous dispatch of your Journal to the I.D.A., and hope that your kind collaboration with us will find continuation in the future. Δ

A. Yazdani, DMD, MScD
Executive Director/Board Member
Iranian Dental Association
Teheran

CDA's 'efforts benefit all dentists on globe'

I am glad to write to the Canadian Dental Association to express my deep regards for the efforts being spent for the dental community.

In fact, all that this association is providing is not only benefitting the Canadian dentists, but more. It is filtering to all dentists on this globe, looking with respect for this profession. All your software, hardware and materials in general, are spreading even to overseas where the scientific approach is still the prime choice.

Let me kindly ask to join your association, as a member, besides adding myself as one more reader for your dental journal. Receiving your application will be highly appreciated. Δ

Dr. Mohamed H. Bizri
Sidon - Lebanon

Re: Book review, JCDA "Occlusion — Principles and Concepts"*

After 25 years of teaching the subject of dental occlusion, in Brazil, and as an Associate Professor in the Department of Occlusion at the University of Michigan, School of Dentistry, I am aware that the subject can not be covered in just one book. My intention in writing "Occlusion: Principles and Concepts" therefore, was to provide the basis and motivation for its readers to seek more comprehensive publications. In the original Portuguese edition as well as in the English edition my objective was to be simple and direct as well as provide room for speculation and reflection. Both books were carefully revised by competent professionals.

I am convinced that the American edition reached the necessary clarity since the book has been internationally accepted, being translated into Spanish and Italian, and with a 2nd edition in Portuguese, and a Japanese edition in the final stages. The book also has been contracted for French and German translations. With this in mind I cannot agree with your final comments that this publication is not suitable to North American readers, since I refuse to believe they are less intelligent than the Brazilians and the rest of the world. Δ

José dos Santos, DDS, MS,
Associate Professor
Restorative Dentistry — Occlusion
The University of Michigan School of Dentistry,
Ann Arbor, Michigan

*Book review, J Canad Dent Assn No. 12, 1987, Page 888

Thanks for publishing research notice

Thank you for putting my request for names of children's books on the topics of dentistry and going to the dentist in the Volume 54, No. 3 of the *Journal*.

Although I have received only one response to date May 26 (from a dental therapist/hygienist), it was most fruitful.

Thank you for your support in my research.

Ruth Rees, PhD
Assistant Professor
Faculty of Education
Queen's University
Kingston, Ontario

Confused about infection control?

We can help

The amount of information generated today about infection control is overwhelming. To clarify the confusion, ignore the claims and focus on the facts.

FACT: The CDA and CDC have both stated that all heat stable dental instruments should be routinely sterilized between use by autoclave, dry heat or chemical vapor.

FACT: There are many surfaces and instruments in a dental operator which cannot undergo sterilization. A high-to-intermediate level disinfectant is therefore required. For complete disinfection, you want a tuberculocidal, broad spectrum kill, an EPA and ADA acceptable product, non-corrosive to instruments and as non-toxic as possible.

FACT: Pathex, a potent disinfectant from the Block Drug Company, is a broad spectrum, dual synthetic phenol which is bactericidal, virucidal, fungicidal, pseudomonacidal, and tuberculocidal in just 10 minutes.¹

FACT: Pathex is intended for use as a surface disinfectant (a unique non-aerosol sprayer bottle is available for this purpose); a holding solution (a special detergent formula starts cleaning action chairside); and for immersion disinfection of semi-critical instruments.

FACT: The combination phenol formulas based on o-phenylphenol (9%) and o-benzyl-p-chlorophenol (1%), when compared with glutaraldehydes, are less corrosive to metal instruments, will not yellow skin or release irritant fumes or odor, and are less toxic.²

FACT: Pathex is biodegradable.

When all the "noise" is eliminated, so is the confusion. The choice is clear — Pathex for your disinfection needs.

Pathex

An effective disinfectant solution for dental instruments and devices.



1 EPA Registration No. 46851-4

2 American Dental Association Council on Dental Therapeutics. Acceptance of (synthetic phenol) disinfectant for instruments and equipment JADA 110:394, 1985



Dental Products Division
Block Drug Co. (Canada) Ltd.,
Toronto, Ontario M4B 3E3
1-800-268-5747

Quality Products for Dental Health

Porcelain Posterior Resin-Bonded Restorations:

Current Perspectives on Esthetic Restorative Dentistry: Part II

*John N. Nasedkin, DDS, MRCD(C),
Vancouver, B.C.*

Synopsis

In Part I of this series we discussed the history of porcelain laminates and indicated that the durability of these restorations has led to the acknowledgement of esthetic restorative dentistry as a reality for the dentist and for the discerning patient who wishes dental restorations which look like natural teeth.

The development of resin-bonded posterior porcelain restoratives is a natural extension of the successful application of porcelain laminates as anterior veneers. The marginal integrity of the restoration is excellent, and the use of shade selected porcelain now means that it is possible to produce invisible and undetectable supra-gingival margins. High patient acceptance and simplified procedures make this technique an integral part of the service of every dental office. This paper (Part II) will detail the

application of laminate principles to the posterior region.

History

Porcelain laminate veneers were first placed at New York University in 1982, and subsequently reported by Simonsen and Calamia,¹ and Horn.² The success of the application of etched porcelain veneers resin-bonded to etched enamel has since been documented in detail. Processed composite veneers were also introduced and many different products came to the market in the 1984-85 period. A patent dispute as yet unresolved made many dentists and laboratories reluctant to undertake these new procedures, yet the idea continued to gain popularity and now enjoys wide acceptance. Dental Products Report (Dec. 87)³ indicated that more than 2/3 of dentists now use indirect veneering procedures. A reported high rate of delamination of the processed composite products⁴ has focussed interest on the porcelain laminates.

In late 1985 two of the major porcelain systems* introduced posterior porcelain restorations. These and similar systems are now in widespread use throughout the world and this paper focusses on the application of the general process.

Research

Jensen and his co-workers at the University of Iowa have shown that the resin bonded porcelain restoration restored 100 per cent of original cusp stiffness.⁵ Their work at the Dows Institute for Dental Research has also indicated that micro-leakage is reduced to 25 per cent of that of posterior composite restorations and that a high fracture strength is present. Nicholls recently reported⁶ that tensile bond strengths of 4,000 lbs. are regularly achieved with laminated porcelains and that this is sufficient strength for normal function.

* Mirage, Myron International, Kansas City, KS 66101.
Cerate, DenMat, Santa Maria, CA 93456.

FIGURE 1

Comparison

Full Crown (Porcelain fused to gold or cast ceramic)	Bonded Porcelain Restoration
Gross loss of tooth structure	Relatively intact tooth.
Older person — multiple restorations	Younger essentially caries-free population
Gingival margin on cementum	Gingival marginal on enamel
Bruxism — parafunction	No parafunction or treated occlusal disorder
Group function lateral guidance	Cuspid protected occlusion
Root canal may be required (gold occlusal coverage)	No anticipated pulpal involvement.

Indications and Comparisons

Posterior composite limitations:

Eight out of 10 dentists in the United States are now using posterior composite restorations³ and there is widespread concern about the use of this material in situations where it is contra-indicated. Currently only one material has received ADA approval and three others are provisionally approved for posterior use although there are many ongoing difficulties with the materials.

Problems apparent are:

PCR — posterior composite restoration
Post-insertion sensitivity possibly due to polymerization shrinkage of the material and resultant tooth distortion.⁷ Micro-leakage and loss of surface integrity occurs and there is both occlusal and proximal surface wear and considerable difficulty in securing and maintaining interproximal contact.

Following the correct insertion technique is very time consuming and accordingly not cost-effective. Indirect approaches on the other hand allow for controlled chair time with the bonded porcelain posterior restoration able to overcome the problems inherent to posterior composite. The advantage to the practitioner is more cost-effective application of his time.

Porcelain Indications:

The resin-bonded posterior porcelain is indicated for teeth that are relatively intact. It is ideal for the young adult, essentially caries-free population with only a few amalgams in their mouths. Although full coverage is possible, one must recall that the strength is secured through resin-bonding to intact tooth

structure and therefore adequate amounts of well-supported enamel are required. The restoration should finish on a gingival seat upon intact enamel so that the replacement of deep sub-gingival amalgams is not an ideal situation.

Contraindications:

Parafunctional activity, such as clenching and bruxism (night grinding) must be regarded as less than desirable situations. In these cases the use of indirect laboratory-cured composites may be preferable.⁸

Ideally a cuspid-protected occlusion with minimal additional stresses should prevail as the occlusal scheme, when resin-bonded porcelain is used. Since root canal treated teeth are most effectively restored with a post and core approach and full crowns cemented to the posts, bonded porcelain is usually not indicated.

A comparison as to when a full crown of porcelain fused to gold or other cast ceramic material would be used as related to the bonded porcelain restoration is indicated in Fig. 1.

Advantages and Disadvantages

There are numerous advantages to the resin-bonded porcelain restoration. Since tooth structure is maintained it is very conservative in preparation, and highly esthetic as it blends completely with the tooth. Tissue tolerance is excellent, as is marginal integrity. Porcelain is extremely close to tooth structure in thermal conductivity and some manufacturers claim that caries resistance is provided by the use of glass ionomer liners which leach fluoride over the long term. In reality this happens only when the restorations are subject to microleakage, which is extremely low due to the extremely close

adaptation of the marginal areas.

Any disadvantages are those in common with other indirect approaches and include: Cost — due to laboratory fee; two visits and need for provisional or temporary restorations; and the need for isolation on seating by rubber dam or moisture control. It should be pointed out that the restoration is inherently fragile until bonded to the tooth, and that delicate handling is required. Patient appreciation occurs as with no other service. People want restorations that look like teeth, not like a false material or metal. Bonded porcelain feels, functions and appears like a natural tooth.

Uses

1. Inlay and onlay posterior restorations.
2. Partial and full veneer coverage of teeth without loss of gross amounts of tooth structure.
3. To restore lateral guidance — such as modified cuspid three-quarter crowns or as overlays on inner inclines of upper premolar teeth when canines are missing.
4. After TM joint treatment when stabilization has occurred and a posterior occlusion is required.
5. Following orthodontic treatment to bring specific teeth into occlusal function (overlays).
6. In all veneering situations and especially to provide fixation post-orthodontically.

TECHNIQUE

Preliminary:

Protocol for Passive Fit Restorations

Porcelain restorations which have been fired on refractory dies are inherently fragile until resin-bonded to the tooth. For this reason they cannot be malleted to place nor can the occlusion be adjusted until bonding has taken place. It is essential that the dentist **Prepare the Mouth to Receive the Restoration.**

a. Planning for the provisional —

Since most porcelain restorations are placed above the height of contour of the tooth it is wise to have a thermoplastic shell of the teeth before preparation in which to make an acrylic or other provisional for wear in the interval until the seating appointment.

b. Reshaping the opposing arch and teeth

Opposing teeth which are over-erupted, or with sharp cusps, capable of bringing

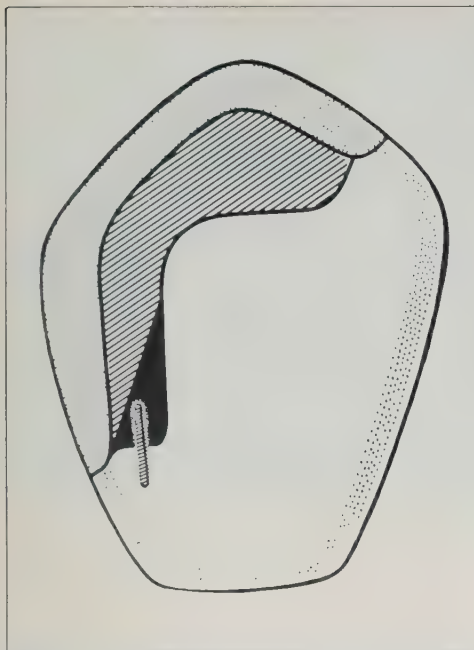


Figure 2. Amalgam pins and some surrounding amalgam are left intact. The diagonal striped area represents glass ionomer base material and the dotted area is the porcelain restoration with 120 degree chamfer at the finish lines.

excessive force to bear on a restoration must be reshaped to rounded harmonious contours.

c. Occlusal stabilization

Occlusal harmonization, or equilibration should be carried out beforehand if required.

Balancing and unwanted working contacts in habit bite closure should exist and teeth should not move on closure (no fremitus). When forces are directed down the long axis of the teeth, they will be stable in the temporization phase and no parafunctional activity will be initiated.

Actual Steps

- 1. Preliminary shade selection:** Use shade guides coordinated with the porcelain used.
- 2. Local anesthesia and impression** in polyvinyl siloxane for provisional if not provided beforehand.
- 3. Removal of old amalgam with spray of air and water.** Leave pins and some residual amalgam around them if they are present. See Fig. 2.
- 4. Shade confirmation** — specify degree of staining of the enamel grooves required as well as any maverick shades or custom shading like neck shades.
- 5. Dentin foundation placement.** Remove all caries and stain and ensure that remaining tooth structure is solid dentin. Isolation with rubber dam or a matrix band is helpful. Calcium hydroxide

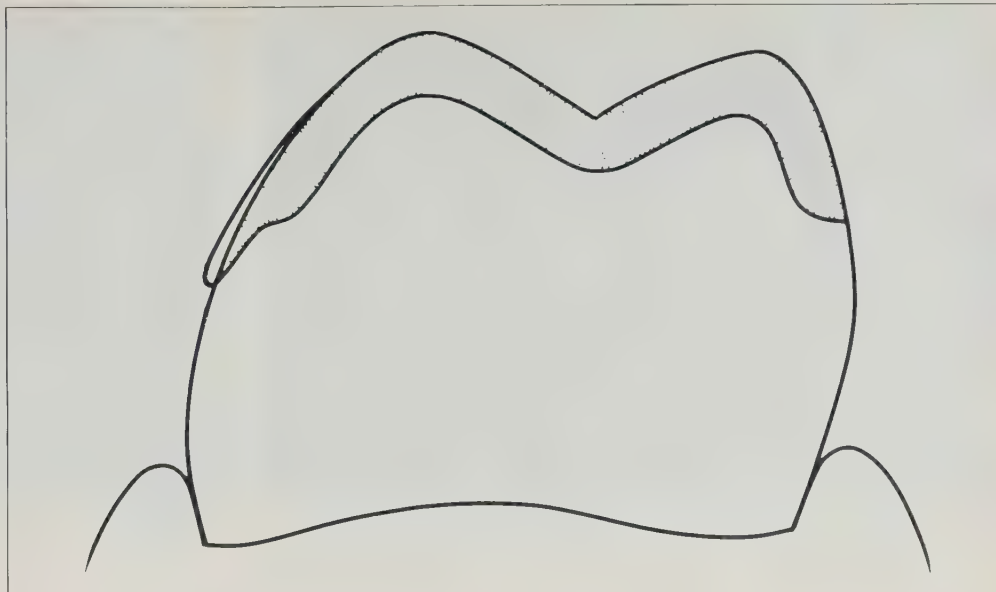


Figure 3. Long supra-gingival bevel for visible margin. Excess porcelain is removed during the finishing process and after bonding.

FIGURE 4

Bonding Sequence: Posterior Porcelain Restorations

Clean	Flour of pumice slurry
Prime	Silane coupling agent to etched internal of restoration.
Try-in and Internal Adjustment	Seat. If resistance, check and correct contact point. Then use Fit-Checker or light PVS material and relieve internal interferences.
	Try-in filled resin and shade modification if needed. Clean with cleanser (meth Cl.) Reapply silane.
Isolate	Rubber dam preferred or retraction cord.
Protect	Exposed dentinal areas with dentin bonding agent (not on lining cement).
Roughen	Enamel margins with a white stone or fine diamond if dentin bonding agent used.
Etch	etching agent for 30 or more seconds on enamel — only 15 seconds on glass ionomer cement
Rinse	water 60 seconds
Dry	oil-free or heated air
Coat Approximating Surfaces:	mineral oil or protective film
Resin	light activated unfilled resin on tooth and inner surface of restoration — air thin gently
	Filled resin on restoration
	finger pressure maintained
Seat Gently	
Seal Margins with Unfilled Resin	fine brush passed at 90 degrees to marginal opening
Cure	visible light cure 90 or more seconds if dark shade
Finish Margins	white stones and diamond margin trimmers diamond files interproximally
Check and Adjust Occlusion	porcelain finishing kit
	Shofu Ceramiste finishers
Polish	diamond paste

is placed in deep areas — small amounts only — preferably the newer, stronger visible light cured variety — CARE or VLC Dycal.

Place dentin conditioner (polyacrylic acid) or 5.5 per cent NaOCl for 15 seconds and wash — barely dry and place glass ionomer base type of cement. The newer glass ionomers offer extremely high compressive strengths (of the order

of 25,000 psi or greater) and this feature resists flexure and static fatigue of the bonded porcelain. Bases of this type* include Mirage Base Glass Ionomer, Shofu Glaslonomer Base and GC Dentin Cement.

* Mirage, Myron International, Kansas City, KS 66101.
Shofu, Menlo Park, CA 94025.
GC International, Scottsdale AZ. 85260.



Figure 5. As the lower quadrant is isolated for bonding, the details of the glass ionomer foundation, the rounded internal angles and the conservative preparations are apparent.



Figure 6. Lower full arch before preparation.



Figure 7. Completion of the lower arch with eight resin bonded porcelain restorations in order to increase the vertical dimension and post-tm joint treatment stabilization in bonded porcelain restorations.

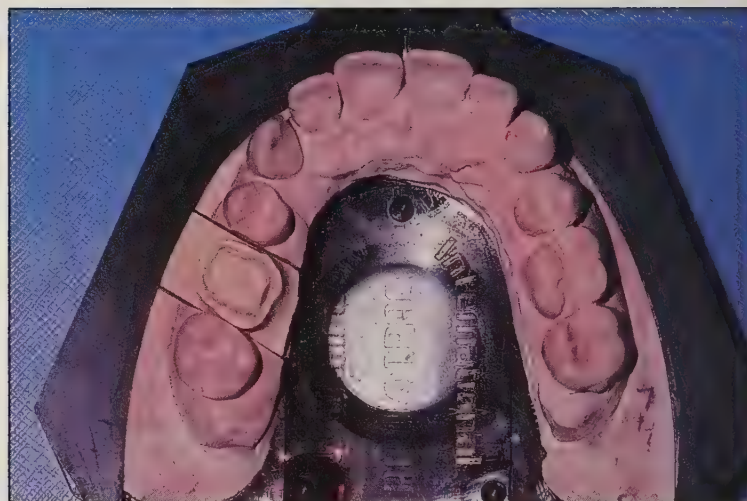


Figure 8. Refractory duplicate die in the tray indexing system prior to calcining in which the ammonia gases are driven off and the die becomes white.



Figure 9. Upper right first molar full coverage bonded porcelain restoration with supragingival margin.



Figure 10. Facial view of tooth #1.6 as above.



Figure 11. Refractory die in articulator and tray index system for occlusal refinement prior to final firing.



Figure 12. Teeth are separated, etched and contacts isolated with strips prior to bonding.



Figure 13. Radiograph of three bonded porcelain restorations on lower right.



Figure 14. Hypoplastic and defective incisal of 2.3.

Cover all exposed dentin. When surface sheen is lost, place a vaseline or mineral oil coat for a total of four or more minutes set. The coating will prevent drying and cracking of this base which is intimately and securely bonded to the dentin.

The opacity of the glass ionomer is highly neutral and does not contribute to any appreciable change in the color hue of the restoration. Adequate tensile bond strengths to dentin are present.⁹

6. Finalize the preparation.

It is wise to ensure beforehand that occlusal contact areas are not located on or near finish lines.

a. Insure adequate occlusal reduction of minimum 1.5 mm.

b. Finish lines should terminate on intact enamel and with 120 degree chamfer margins.

c. Visible supra-gingival margins require long finishing bevels, see **Fig. 3**.

d. Proximal reduction of 1-1.5 mm is needed.

e. All line angles and internal angles are rounded. Resistance and retention form are NOT needed.

Tissue Retraction

Gingival retraction is often not necessary since finish lines are easily placed supra-gingivally. Where required, the tissues should be adequately retracted with impregnated cord prior to impression taking.

Impressions

Full arch trays are required in order to ensure that adequate inter-digitation can be secured in the laboratory phase. Ideally the opposing impression should be taken in the same material as the master cast and the cast poured in the same die



Figure 15. Sealing of the margins with unfilled resin prior to light exposure for complete curing of the resin.



Figure 16. 40 micron finishing diamond reduces over-built porcelain of visible supra-gingival marginal area.



Figure 17. Completed bonded porcelain restoration on 2.3.



Figure 18. Acid regurgitation has caused loss of tooth structure and posterior bite collapse. Lower arch before.



Figure 19. After the placement of seven bonded porcelain restorations.

stone. Hydrocolloid may be utilized if the dies are poured by the laboratory. If the dentist or his staff are pouring the dies, they should pour only the coronal portions of the impression and deliver this to the laboratory for appropriate basing.

Inter-Occlusal Records

An inter-occlusal index should be secured and trimmed to leave only the occlusal portion and to avoid any soft tissue impingement. These indexes should be of a dimensionally stable material of which the polyvinylsiloxane variety should be stored and shipped in a sealed plastic bag.¹⁰

Provisionals

Since the preparations recommended are lacking in resistance form, the temporary restorations should be well fitted and may require the addition of further acrylic on the buccal or lingual surfaces at the margins to extend into undercut areas for retention.

Provisionals should be cemented with a Non-Eugenol containing cement. Eugenol containing cements cause a reduction in resin bond strength.

New formulations of composites such as Mirage* light-cured temporary restorative material, for use as provisional restorations may be placed in a thermo-plastic shell and set with light curing exposure.

Mounting

The dentist should mount the casts in an articulator and accept responsibility for the cast relationships. If this is not feasible, then maximum information should be provided to the laboratory.

Laboratory

Porcelain restorations for intra-oral bonding are usually fabricated on refractory

dies. The dies must be designed to be removable from the master cast for firing in the porcelain oven, and returnable for occlusal and interproximal adjustments during the build-up. A die-lock system in which specific segments of a cast may be poured as a refractory is needed. This allows the technician to use a duplicating material, construct a refractory die and use this die during the firing cycle. See **Figs. 8 and 11.**

Once the restoration has been completed (usually 3 firings), it is separated from the die by sand-blasting and acid etched on the inner surface to provide the micro-mechanical retention area for resin attachment. It is possible to add contact points with low fusing porcelain in interproximal areas. Platinum foil matrices may also be used for fabrication of porcelain inlays or onlays.

Bonding

A logical bonding sequence is of assistance to guide both the dentist and

* Chameleon Dental Products, Kansas City, KS 66101

the assistant until the procedure is learned. See Fig. 4.

Steps: *Beforehand*

Restorations are primed on the etched inner surface with a silane coupling agent in order to improve bond strength.

The coupling agent is lightly painted on the inner surface and dried in air or with heated air.

1. **Anesthesia** is secured if required. Many of these restorations may be placed without anesthesia as all of the exposed dentin has been protected with the glass ionomer cement.

2. **Provisionals** are removed and the teeth to be restored are cleaned with moistened flour of pumice. Do not use flavoured or oiled pumice formulations.

3. **Try-in and Internal Adjustment:**

The restoration is seated and if resistance is felt — Pascal Occlude* or similar disclosing spray is applied and the contact point reduced in the appropriate area. On the die the proximal surface is adjusted and then polished with a diamond polishing paste. If the contact is lacking, the restoration may be returned to the laboratory for the addition of low-fusing porcelain to rebuild the contact.

Internal fit and adaptation may be checked with a light bodied polyvinyl-siloxane like GC Fit Checker**. Interferences to complete seating are removed with a diamond burr in areas which show through the checking material.

A filled resin of the appropriate shade is applied to the inner surface and the restoration inserted to check the shade. Since there is a tendency for the opacity of the etched surface to show through at bevelled marginal areas, we generally select a resin shade somewhat darker than the restoration. Shade modification is possible and custom mixes for ideal shading may be made from most of the kits on the market.

Do NOT check the occlusion at this time — only after the restoration is bonded to place.

Following the use of both of the polyvinylsiloxane and the determination of custom shades the restoration should be ultrasonically cleaned in a cleanser of methylene chloride to remove any residue, rinsed thoroughly, dried and silane coupling agent re-applied.

4. **Isolate:** Rubber dam isolation is preferred or retraction cord and cotton rolls are placed.

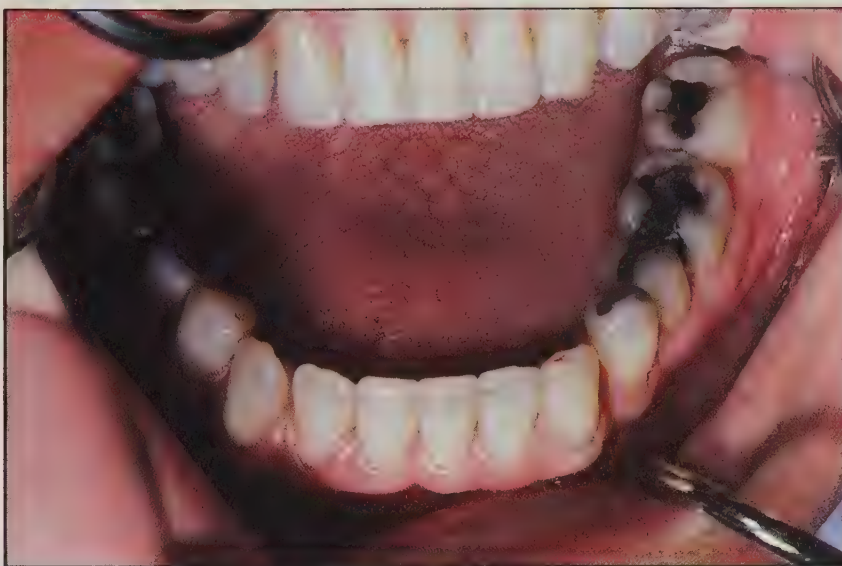


Figure 20. Bonded porcelain concepts lend themselves to effective quadrant dentistry: Lower left before treatment.

5. **Dentin Protection:** Exposed dentinal areas may be coated with dentin bonding agent at this time if required. Freshening of the enamel margins to remove any excess will then be needed.

6. **Etch:** Etching agent of the ortho-phosphoric acid gel type is placed on the enamel for 30-60 seconds — to insure a chalky light surface of etched enamel.

After the enamel has been etched, the gel is spread to the glass ionomer which is etched to provide micro-mechanical retention in only 15 seconds.

7. **Rinse:** Thoroughly for 30-45 seconds.

8. **Dry:** Oil free or heated air for thorough drying.

9. **Coat Approximating Surfaces:** With a protective film of Liquid Strip.*** This thin gel is halfway between the consistency of Vaseline and mineral oil, and will prevent adhesion when the restoration is bonded to place.

10. **Unfilled Resin:** Is placed on the inner surface of the restoration and upon the etched tooth structure and glass ionomer and thinned with a gentle air blast.

11. **Filled Resin:** Of the selected shade is placed to cover the inner surface of the restoration.

If the restoration is very darkly shaded or is considerably thick or will be located in an area difficult to place the light curing tip, a combination light-initiated, chemically completed resin is suggested, such as Dual Ultrabond* or Mirage Dual Cure**.¹¹

12. **Seat Gently:** With finger pressure.

13. **Seal Margins with Unfilled Resin:** Pass a fine brush dipped in unfilled resin at right angles to the margin to remove excess and provide a marginal sealant.

14. **Cure:** Visible light cure for 90 seconds or more if dark shade is used.

15. **Finish:** Diamond margin finishers are used — first in 40 micron grit and finally in 15 micron consistency and with air/water spray.¹² Gingival marginal areas may be finished with the * Lasco gingival diamond files in similar grits.

16. **Check and Adjust the Occlusion:** Rubber dam is removed and articulation ribbon is used to check the occlusal contacts and to indicate interferences which are removed in the same way the margins are finished. Wetted Shofu

**Ceramiste finishers are used to polish the surface followed by a wet diamond polishing paste to secure a final lustre.

Patient Instructions

Commonsense instructions as to care and maintenance should be provided.

The patient is encouraged to avoid chewing foods which contain hard objects like bones. A mouthguard should be worn for contact sports and regular hygiene visits are required. Clenching and night grinding are to be avoided.

Acid concentration fluoride mouthwashes and solutions can break down the porcelain surface and should not be used unless specifically selected for a neutral pH.¹³ Airbrasive devices like the Prophy-Jet should also be avoided on multiple exposures since this device has been shown to degrade composite surfaces.¹⁴

* Williams/Ivoclar, Fort Erie Ontario and Buffalo 14214-1099 New York.
Denmat, Santa Monica CA, 93456

** Mirage, Myron International, Kansas City, KS 66101.

*** Vivadent/Ivoclar
Rexdale, Ont. M9W 5A3

* Pascal, Bellevue WA 98004.

** GC International, Scottsdale, AZ 85260.

* Lasco Diamond Products, PO Box 4647,
Chatsworth, CA 91313.

** Shofu, Menlo Park, CA 94025.



Figure 21. Defective amalgams and caries are removed.



Figure 22. Glass ionomer foundations are placed.

Some wear of opposing tooth surfaces may occur due to the natural hardness and abrasive nature of the porcelain, especially in the presence of occlusal interferences. Intraoral occlusal adjustments and finishing as outlined above will maintain smooth surfaces and reduce wear of the opposing dentition or restorations.

Future

New fibre reinforced porcelains reached the North American market in 1987.

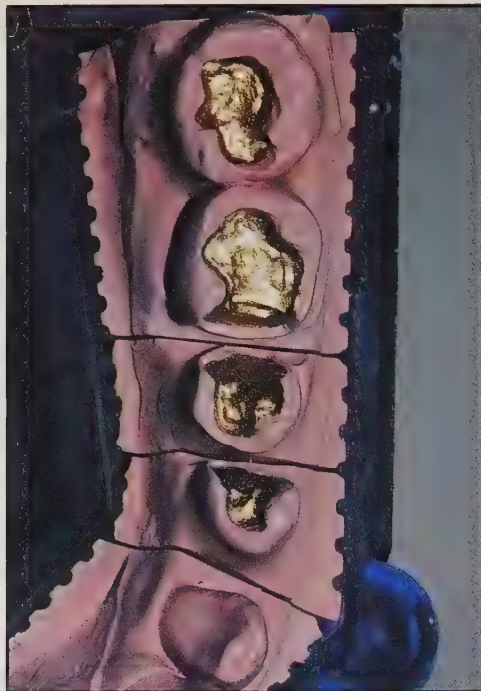


Figure 23. Individual master dies which have had die spacer painted before the duplicating impression is taken in order to make the refractory dies on which the porcelain restorations will be fired.



Figure 24. The completed quadrant of bonded porcelain restorations.

These porcelains are designed to prevent defect propagation and to be able to function in more heavily loaded situations. Resin-bonded porcelain bridges are becoming a practical reality and pre-fabricated high strength pontics of alumina or similar material are being developed. For the moment only very specific low-load situations should be used for any bridge application.

Summary

Resin-bonded posterior porcelain laminate restorations are able to restore tooth strength, and to conserve residual tooth structure while blending harmoniously with the colour tones of the natural dentition. These restorations can be fabricated for a variety of applications from inlay to full crown and they feel to the patient like their own teeth. A well defined clinical procedure is somewhat technique sensitive yet the results are enjoyed and appreciated by both the dentist and the patient.

In Part III of this paper we will discuss resin-bonded porcelain bridges, and alternative fixed bridgework applications. Full coverage porcelain and ceramic substrate/porcelain crowns (Willi's Glas) will be covered as well as crown and bridge porcelain repairs and the outlook for the exciting future of resin-bonded dentistry. Δ

References

1. Simonsen, R.J. and Calamia, J.R.: Tensile bond strength of etched porcelain. *J Dent Res* 62:297 (Abstract No. 1154) 1983.
2. Horn, H.R.: A new lamination: Porcelain bonded to enamel. *N.Y.S. Dent J.* 49:401-403, June 83.
3. Dental Products Report, Dec. 87.
4. Boksman, L.: Customised laminate veneers: Porcelain and composite. *Clinical Dentistry* 4:1-20, 1986.
5. Redford, D.A. and Jensen, M.E.: Etched porcelain resin-bonded posterior restorations: Cuspal flexure, strength, and micro-leakage. *J Dent Res* p. 334, Abstract 1573, 1986.
6. Nicholls, J.I.: Cements for porcelain and veneers. Feb. 15, 1987. *Infomedix T-125-8* Garden Grove CA.
7. Lacy, A.M.: A critical look at posterior composite restorations. *JADA* 114:357-362, Mar. 87.
8. Smalley, W.M. and Nicholls, J.I.: *In vitro* two-body wear of polymeric veneering materials. *J Prosthet Dent* 56:175-181, Aug. 86.
9. McLean, J.W., Prosser, H.J. and Wilson, A.D.: The use of glass-ionomer cements in bonding composite resins to dentine. *Br Dent J* 158:410-414.
10. Lassila, V.: Comparison of five interocclusal recording materials. *J Prosthet Dent* 55:215-218, Feb. 86.
11. Nathanson, D. and Hassan, F.: Effect of etched porcelain thickness on bond strength. *J Dent Res* p. 245, abstract No. 1107, Mar. 87.
12. Tay, W.M., Lynch, E. and Auger, D.: Effects of some finishing systems on cervical margins of porcelain laminates. *Quint. Int.* 18:599-602, 9/87.
13. Jones, D.A.: Effects of topical fluoride preparations on glazed porcelain surfaces. *J Prosthet Dent* 55:483-484, April 86.
14. Lubow, R.M. and Colley, R.L.: Effect of air-power abrasive instrument on restorative materials. *J Prosthet Dent* 55:462-465, April 86.

GLASS IONOMERS

ESPE KETAC-BOND

For cementation of cast post and core. A radiopaque base, beneficial under every composite restoration. This bonded base thermally insulates and chemically protects the tooth. It flows easily to cover all dentin and can be acid etched 2 minutes after placement along with surrounding enamel, to accept an aesthetic overlay of composite.



ESPE KETAC-SILVER

A combination of sintered glass ionomer and pure silver that is ideal for core build-ups, conservative Class I and II restorations in the Ketac-etch technique with a composite overlay. Easily placed, it sets in 3 minutes, chemically bonds to the tooth and is radiopaque.



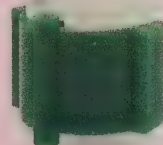
ESPE KETAC-CEM

A luting cement for crowns, bridges and orthodontic bands. Has a low film thickness and high compressive strength. It chemically bonds to dentin and non-precious metals. ESPE KETAC-CEM is best applied with a brush and is completely set in only 3½ minutes after placement.



ESPE KETAC-FIL

ESPE KETAC-FIL is a capsulated all-in-one restorative material, ideal for cervical erosions, root caries, crown margin repairs, pedo restorations or conservative Class I's and II's without contacts. Available in seven esthetic shades, it chemically bonds to teeth and can be finished in only 15 minutes from the beginning of mix.



COEFFICIENT OF THERMAL EXPANSION PPM/°C

KETAC-BOND	8
Dentin	10
Enamel	15
KETAC-FIL	13
KETAC-SILVER	15
Composites	35-75
Amalgam	25-35

ESPE

World's leading authority on glass ionomers. Outstanding products brought to you by Canada's leading dental supply house.

**Ash
Temple
LIMITED**

Canadians serving
Canadians

N
E
W

ANTI-PLAQUE

Viadent[®]

Control and protection
where it counts.



Sanguinarine: A unique anti-plaque ingredient.

Sanguinarine helps to inhibit the growth of plaque microorganisms shown to be related to periodontal disease and caries, while not affecting the bacteria normally associated with healthy tissues.¹

¹ Dzink, J.L., and Socransky, S.S. Comparative in vitro activity of sanguinarine against oral microbial isolates. Antimicrobial agents and chemotherapy. 27:663-665, 1985.

Extensive research demonstrates efficacy against plaque and gingivitis.

Sanguinarine has been tested against plaque and gingivitis in well controlled studies* conducted at major universities and research centres around the world.

In over 25 published articles and abstracts, Viadent was shown to be most effective in plaque control and prevention of gingivitis.

*Available upon request

- > Clinically shown antimicrobial activity that lasts up to 2 hours.
- > Clinically shown to inhibit plaque formation.
- > Clinically shown to reduce and prevent gingivitis.



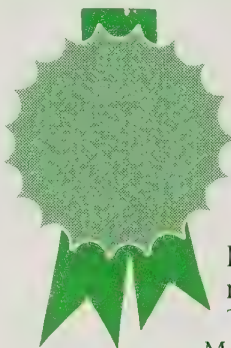
Recommend Anti-plaque Viadent.
Your patients will feel the difference.



Frank W. Horner Inc.
Dental Products Division.
5485 rue ferrier
montréal québec
H4P 1M6

These days an M.D., LL.B., D.D.S., or D.V.M. isn't enough.

You also need a TD.



Handling the financial end of a professional practice can take a lot of time and energy away from your practice. That's why TD has put together a comprehensive package of services to make your financial management simpler, more convenient, and more efficient.

TD's Professional Practice Financial Management Plan.

Drawing on our years of experience in helping professionals with their financial matters, TD has prepared a special group of services that will be useful to you. These include Operating Loans, Interest Bearing Current Accounts, Cash Management Services, and Fixed or Floating Rate Loans and Leases for start-up,

expansion, or equipment acquisition.

We can also integrate your personal banking into the same TD branch, for your convenience. That way you'll have access to all our personal banking services including TD's Green Line Investor Service, which puts a wide range of investment services at your fingertips.

TD understands professionals. Let us send you information on TD's Professional Practice Financial Management Plan. Just fill out the coupon and mail. Or visit your nearest TD branch manager. Come and talk with us.

Please send me more information on TD's Professional Practice Financial Management Plan.

Name _____ Profession _____

Street _____ Suite _____

City _____ Province _____

Postal Code _____

Mail to: TD Bank Professional Practice Services,
Commercial & Industrial Banking Division,
P.O. Box 1, TD Centre, Toronto, Ontario, M5K 1A2.



where people make the difference

TRIAZOLAM

an oral sedative for the dental practitioner

Earle R. Young, BSc, DDS, BScD, MSc, FADSA
Douglas Mason, BSc, DDS
Toronto

ABSTRACT

The benzodiazepines have a long and successful "track record" for outpatient sedation prior to dental procedures. Triazolam (Halcion®), supplied by the Upjohn Company, is a newer short-acting benzodiazepine, 8-chloro-6-(O-chlorophenyl)-1-methyl-4H-5-triazolo (4,3- α) (1,4)-benzodiazepine. Triazolam possesses hypnotic, anticonvulsant, amnesic, muscle relaxant and sedative properties. Because of its predictability, fast onset, short half-life and lack of active metabolites, it appears ideally suited for dental office sedation.

Because of pharmacologic similarities shared by all of the benzodiazepines, we will review the general pharmacology of this class of drugs as well as the specific properties of Triazolam.

SOMMAIRE

Depuis longtemps, on utilise avec succès les benzodiazépines pour calmer les patients externes avant les procédures chirurgicales. Distribué par la Upjohn Company, Triazolam (Halcion®) est une toute nouvelle benzodiazépine dont l'action est de courte durée et qui possède des propriétés hypnotiques, anticonvulsivantes, amnésiques et myorelaxantes. Parce que cette drogue a des effets prévisibles, agit rapidement, disparaît vite

dans l'organisme et ne possède pas de métabolites actifs, elle semble idéale pour la sédation au cabinet dentaire.

Parce que toutes les benzodiazépines présentent des similitudes d'ordre pharmacologique, nous passerons en revue la pharmacologie générale de ce type de drogues ainsi que les propriétés particulières du Triazolam.

A significant number of patients require mood alteration and anxiety reduction to permit dental treatment. Oral premedication is frequently a first choice because it has a number of advantages for dental office use (Table I).

Several considerations must be made for optimal effectiveness when using any drug for pre-operative sedation:

- 1) These drugs should be given one hour before the procedure begins
- 2) They should be administered with a small amount of water on a stomach that has been empty for at least four hours
- 3) As fear slows gastric emptying, it is often advantageous to administer a "night before" dose and then treat the patient in the morning, following a restful sleep. In this case, the patient should be driven to the office for the treatment appointment
- 4) Following treatment, the patient should be escorted from the office by a responsible adult and cautioned against

operating a vehicle or similar activities for the remainder of that day

- 5) Do not combine these drugs with other CNS depressants, especially ethanol
- 6) These drugs should, ideally, be administered in the dental office with the patient being placed under observation in a recovery type facility.

A typical regimen for sedation of the dental patient is shown in Table II. It should be noted that one should start with a low dose and work to higher doses if necessary, as the incidence of adverse reactions generally increases as doses are increased.

The benzodiazepines

Since their introduction in the early 1960's, the benzodiazepines have rapidly gained wide acceptance due to their desirable anxiolytic, sedative, hypnotic, anticonvulsant and amnesic effects, and they are currently among the most widely prescribed drugs. They have been repeatedly shown to have a low incidence of respiratory and cardiovascular depression, autonomic imbalance and a high therapeutic index, particularly when used by the oral route.¹⁻³ Dionne et al.⁴ showed a significant 29 per cent reduction in plasma norepinephrine levels, reflecting their anti-anxiety effect and attenuation of the sympatho-adrenal response to the stress of minor oral surgery procedures.

TABLE I

Advantages of oral sedation for outpatient dental procedures

- simple and convenient to use
- readily available
- any adverse drug reactions tend to be relatively mild
- no injection is required
- minimal equipment is necessary
- readily accepted by most patients
- relatively inexpensive

Mechanism of action of the benzodiazepines

The pharmacokinetic profile has been described as a two-compartment model: distribution from a central compartment to a more peripheral compartment followed by elimination.⁵

There are currently two hypotheses of benzodiazepine receptor interaction — a multireceptor hypothesis and a single receptor with multiple conformations.⁶ Evidence tends to support the former. The benzodiazepine receptor is linked to the GABA receptor with a co-operative effect between the two receptors such that benzodiazepines stimulate either an elevation of GABA levels or increase the effect of GABA at its receptor.⁷ Because of GABA's effects on chloride ion movements, the entire complex has been termed the GABA-Chloride Ionophore complex. GABA's increase in chloride conductance leads to hyperpolarization (Cl^- entry) on the cell soma, also termed inhibitory post-synaptic potentiation, or local depolarization (Cl^- out) on axo-axonal sites termed pre-synaptic inhibition. GABA may also decrease excitatory post-synaptic potentials.⁷ A purine such as inosine may be the endogenous neurotransmitter for the benzodiazepine receptor.^{7,8} The benzodiazepines are also said to increase inhibitory post-synaptic potentials at internuncial neurons in the spinal cord and brain stem where glycine is the endogenous neurotransmitter.⁷ Kanto and Klotz¹ have also postulated a decrease in acetylcholine at pre-synaptic sites in the CNS. This would explain the often quoted central anti-cholinergic syndrome attributed to the benzodiazepines, the symptoms of which are shown in Table III. Physostigmine (Antilirium®) has been advocated for the treatment of this syndrome,^{9,10} as it increases CNS acetylcholine levels due to its tertiary anti-cholinesterase properties. This reversal may however be due to the general analeptic (arousal) property of

TABLE II

Schedule for the oral use of Triazolam in the dental office

Use	Dose	Comment
"Night-before" sleep	0.25-0.5 mg	a) patient should be escorted to the office as "hang-over" effects have been reported b) anxiety and fear slow gastric emptying, therefore a restful sleep the night before may be advantageous
Pre-operative sedation	0.25-0.5 mg	a) administer 1 hour prior to appointment b) stomach empty for 4 hours before c) patient escorted home from office d) no heavy meal in the immediate postoperative period (second sleep effect) e) doses should be individualized on the basis of age, size, anxiety and medical history*

* In general, the above doses are for healthy 70 Kg adults. The scored 0.25 mg tablet can be easily halved to further individualize the dose.

Physostigmine.¹¹ It is known that the experimental drug RO-15-1788 (Anexate), by competition with the benzodiazepine at its receptor, causes general arousal without the potential adverse side effects of Physostigmine.^{6,12,13}

Finally, Richter⁸ has suggested that GABA may influence both dopamine and serotonin levels in the central and peripheral nervous systems. He also noted that the regional distribution of benzodiazepine receptors parallels the distribution of GABA receptors. He further hypothesized specific sites of action (Table IV). This type of structure-activity relationship has also been suggested by Babbini et al.¹⁴

Triazolam

Triazolam is a short-acting benzodiazepine (half-life of 2-3 hours) which is said to be up to eight times more effective as a hypnotic than diazepam, although its anticonvulsant properties are much less.¹⁵ In mice, it was shown to have more profound muscle relaxant properties than diazepam.¹⁵ It is rapidly absorbed after oral ingestion, with peak blood levels in 1.3 hours. It is 90 per cent protein bound.⁷ There are six metabolites, one of which has mild effects.¹⁵ It is metabolized in the liver via the P450 mixed function oxidase system on the smooth endoplasmic reticulum. Ninety per cent is excreted in the urine and 9 per cent in the feces, mainly as conjugates of α -hydroxytriazolam and 4-hydroxy metabolites.¹⁵ By inhibiting the P450 system, the popular antacid, Cimetidine (Tagamet), prolongs the action of all benzodiazepines. Ranitidine (Zantac)

TABLE III

Symptoms of the postulated anticholinergic syndrome attributed to benzodiazepines

- delirium
- anxiety
- hyperactivity
- hallucinations
- impaired consciousness
- respiratory depression

does not have this effect.¹⁶ There is no accumulation on repeated administration in patients with normal renal function.^{15,17}

Specific actions of Triazolam

1) Hypnosis

Triazolam in doses from 0.25 to 1.0 mg has been used extensively as a hypnotic in insomniacs,¹⁸⁻²⁰ as well as for "night-before" sleep prior to surgery,²¹ with good patient satisfaction. It has been noted that normal sleep (stages 3 and 4, also called slow-wave sleep) did not change, while stage 2 sleep increased to 50 per cent of the total night sleep.¹⁵ Rapid eye movement or REM sleep was minimally depressed,^{7,15} but greatly depressed at doses over 1.0 mg. No rebound insomnia was seen after discontinuing Triazolam.²¹ The above actions lead to a short onset of action, a decrease in frequency of waking with no difference in feeling upon awakening when compared to placebo in most patients.²¹ Electroencephalograms (EEG) showed essentially normal sleep patterns in both

TABLE IV

Sites of action of benzodiazepines⁸

Action	Major Sites(s)	Mode of Action
Sedation	Cerebral cortex Reticular activating formation	Enhanced effect at GABA receptors
Anxiolysis	Brain stem Limbic system Cerebellum	Enhanced effect at glycine receptors GABA induced alterations in serotonin and acetylcholine
Muscle relaxant	Spinal cord	Enhanced effect at glycine receptors
Anticonvulsant	Throughout the CNS	Enhanced effect at GABA receptors

TABLE VI

Contraindications to Triazolam use

Absolute	Comments
- Known hypersensitivity - lack of knowledge of the pharmacology of Triazolam - inability to initiate resuscitation - myasthenia gravis - glaucoma - first trimester of pregnancy - lactation	Triazolam is a CNS depressant Triazolam is a muscle relaxant - possible anticholinergic effects(?) - teratogenic effects - appears in breast milk causing infant sedation, displacement of bilirubin from albumin - marked potentiation - prolonged effect
Relative	
- pediatric and geriatric populations - psychiatric patients - concurrent drug administration	a) lack of detailed study b) altered elimination and distribution a) suicidal tendencies unmasked b) paradoxical behaviour - possible displacement from albumin binding

normals and insomniacs.^{19,22} Although its hypnotic effect was excellent in psychiatric patients,³ it is generally not recommended for use in this population.²¹ Triazolam is believed to have low abuse potential,¹⁷ although this has been questioned in individuals predisposed to chemical abuse.^{15,23} Singh et al.²⁴ cite only one case of true Triazolam dependence, and this patient had been abusing other drugs including Triazolam for over five years. Significant enzyme induction does not occur even after prolonged use.¹⁵

The mechanism of hypnotic action of benzodiazepines has been discussed, but a decrease in inactivation of dopamine has been shown in rat brains, with an increase in acetylcholine in the cortex and striatum, suggesting a specificity of action for Triazolam.¹⁵ No direct effect on

catecholamines has been reported. The observed effects of serotonin on the reticular activating formation (RAF) have been variable.^{3,7,8} It has therefore been postulated that the beneficial changes in sleep patterns are due to alteration between the phases due to serotonin and catecholamine influences on the RAF.^{7,8,15}

Triazolam, like all the benzodiazepines, is very lipid soluble, thus having a large volume of distribution (VDss). Because of an increase in body fat with aging, this VDss will be larger than in younger adults, resulting in an increased duration of action.¹ Also, because of a reduced plasma protein binding in geriatrics as well as decreased CNS receptor density, smaller doses are recommended in the geriatric population.⁷ Essentially however, onset and duration are determined by distributional processes rather than

TABLE V

Reported adverse effects from Triazolam use

- paradoxical reactions - drowsiness, including the next day - sedation - blurred vision - ataxia/weakness - paradoxical aggression - excitement - confusion - uncovering masked depression leading to suicide - nausea - hiccups - non-rousable patient (overdose) - dry mouth - second sleep effect

elimination processes. Because glucuronidation is not greatly affected by hepatic dysfunction, it has a wider margin of safety in this population than many other sedative-hypnotics such as diazepam.⁷ It should be remembered, however, that renal and hepatic clearance may be slowed in the geriatric population. However, it has been reported that unlike the barbiturates, there is no agitation following oral use in this population, with no more impaired morning alertness than in young people with doses less than 1.0 mg.^{15,17}

2) Amnesia

Triazolam has amnesic properties in doses of 0.25 to 0.5 mg.^{3,25} Richter has proposed that both cholinergic and calcium activated mechanisms, particularly in the hippocampus, are involved in the amnesic action of many drugs.²⁶

3) Sedation

Sedation has been defined as a suppression of arousal and behaviour with reduction of alertness and responses to stimuli.⁷ GABA-induced mediation has been discussed.⁶⁻⁸ Also, sedation has been attributed to depression of the sympathoadrenal responses to stress.^{4,15} In addition to these effects, sedation has also been attributed to depression of the RAF, caused by alternations between serotonin and catecholamine balances in that part of the CNS.^{7,8}

Table V includes some of the reported "adverse" effects of Triazolam. Despite this list, these effects have been reported in less than 4 per cent of patients,¹⁵ with most adverse effects reported in doses over 0.5 mg or when combined with other CNS depressants.^{17,23} Generally, residual side effects have been rare.¹⁸⁻²⁰

Ambulation and/or a heavy meal post-operatively may cause a delayed impairment of psychomotor skills¹ due to mobilization from fat stores and stores in the GI tract, as well as the activation of the enterohepatic circulation. This has been referred to as the "second sleep effect".

As can be seen in Table VI, contraindications are divided into "absolute" and "relative" — under these conditions, Triazolam may be used with caution but appropriate dose alteration may be required.

While it is beyond the scope of this article to discuss in detail the management of adverse reactions to drug administration, it should be noted that most will be prevented by complete history-taking, patient physical examination and appropriate adjustments of drug dosage. Recognition of an emergency situation followed by initiation of stabilization must follow. This essentially entails the A-airway, B-breathing, C-circulation approach of basic cardiac life support (CPR). Opening and maintaining a patient's airway is of paramount importance as is the monitoring of vital functions. Activation of the EMS (Emergency Medical Service) by dialing 911 follows. All practitioners must be familiar with basic cardiac life support before administering any drug.

Summary

As can be seen, as a class, the benzodiazepines appear to have many of the properties which would be desirable for oral sedation of dental outpatients. Triazolam possesses some of its own specific qualities which would make it seem almost ideal. A firm understanding of its pharmacology, as well as a sound in-office emergency protocol should result in a high degree of satisfaction on the part of both patient and practitioner. Δ

Dr. Young is assistant professor of anaesthesia, Faculty of Dentistry, University of Toronto; and a Fellow in Anaesthesia, The Wellesley Hospital, Toronto.

Dr. Mason is a junior resident, Department of Anaesthesia, Faculty of Dentistry, University of Toronto.

Reprint requests to Dr. Young.

References

1. Kanto, J. and Klotz, U. I.V. benzodiazepines as anaesthetic agents: Pharmacokinetics and clinical consequences. *Acta Anaesth Scand* 26: 554-569, 1982.
2. Wang, R.I.H. The hypnotic efficacy of triazolam. *J Int Med Res* 1:600-607, 1973.
3. The Upjohn Co. Halcion, Product monograph, August 1980.
4. Dionne, R.A., Goldstein, D.S. and Wisdzek, P.R. Effects of diazepam premedication and epinephrine-containing local anesthetic on cardiovascular and plasma catecholamine

response to oral surgery. *Anesth Analgesia* 63: 640-646, 1984.

5. Giovannitti, J.A. Pain control in dentistry. *Oral Health* 76:53-58, 1986.
6. Bergman, S.A. The benzodiazepine receptor. *Anesth Prog*. Sept/Oct 1986.
7. Roschlau, W.H.E. (ed). Principles of Medical Pharmacology. Ed. 4. Department of Pharmacy, University of Toronto, 1985.
8. Richter, J.J. Current theories about mechanisms of benzodiazepines and neuroleptic drugs. *Anesthesiology* 54:66-77, 1981.
9. Monograph. Reversal of diazepam induced delirium, respiratory arrest and coma in the dental office. *Anesth Prog* March/April 1978.
10. Review Article. Physostigmine in coma due to drug overdose. *Clin Pharmacol Ther* 25: 96-102, 1979.
11. Bouche, D.L., Rosenberg, M. and Allen, P. Physostigmine: effectiveness as an antagonist of respiratory depression and psychomotor effects caused by morphine or diazepam. *Anesthesiology* 61:523-528, 1984.
12. Spaulding, B., Choi, S.D., Gross, J.B. et al. The effect of physostigmine on diazepam induced ventilatory depression: A double-blind study. *Anesthesiology* 61:551-554, 1984.
13. Wolff, J., Carl, P., Clausen, T.G. et al. RO-15-1788 for post operative recovery. *Anesthesia* 41:1001-1006, 1986.
14. Babbini, M., Gaiadi, M. and Baitoletti, M. Anxiolytic versus sedative properties in the benzodiazepine series: Differences in the structure — activity relationships. *Life Sciences* 25:15-22, 1979.
15. Speight, T.M., Pakes, G.E., Brogden, R.N. et al. Triazolam: A review of its pharmacological properties and therapeutic efficacy in patients with insomnia. *Drugs* 22:81-110, 1981.
16. Simard-Savoie, S. Mechanisms of drug interactions of interest to dentists. *J Can Dent Assoc*, 53: No. 1:51-56, 1987.
17. Committee on the Review of Medicine. Systematic review of the benzodiazepines. *Br Med J* 29:910-912, 1980.
18. Agura, C., Nakazawa, K., Majima, K. et al. Residual effects of hypnotics: Triazolam, Flurazepam and Nitrazepam. *Psychopharmacology* 68:61-65, 1980.
19. Chatwin, J.C. and Johns, R.L. Triazolam: An effective hypnotic in general practice. *Curr Ther Res* 21:207-214, 1977.
20. Leibowitz, M. and Sunshine, A. Long term hypnotic efficacy and safety of triazolam and flurazepam. *J Clin Pharm* 302-309, May/June 1978.
21. Keighley, M.R.B., Gannon, M., Warlow, J. et al. Evaluation of single-dose hypnotic treatment before an elective operation. *Br Med J* 281:829-831, 1980.
22. Schwartz, J.L., Kramer, M. and Röth, T. Triazolam: A new benzodiazepine hypnotic and its effect on mood. *Curr Ther Res* 16:964-970, 1974.
23. Fleming, J.A.E. Triazolam abuse. *CMAJ* 129:324-325, 1983.
24. Singh, A.N., Chemij, M. and Jewell, J. Treatment of triazolam dependence with a tapering withdrawal regime. *CMAJ* 134:243-245, 1986.
25. Pinnock, C.A., Fell, D., Hunt, P.C.W. et al. A comparison of triazolam and diazepam as premedication agents for minor gynecological surgery. *Anesthesia* 40:324-328, 1985.
26. Richter, J.J. Effects of anaesthetic drugs on memory and amnesia. ASA Refresher Course Lectures. 123-124, 1987.

DENTIST WANTED

CU & C Health Services Society is seeking a dentist for our busy growing clinics in Vancouver and Delta, British Columbia. These are modern five and six operator facilities that offer state of the art equipment and a progressive, team-oriented working environment. Attractive income is assured. Interested practitioners are invited to contact Mrs. Gail Bell (604) 879-5711.



YOUR GIFT PROVIDES SAFER WATER

CARE®

Send your gift to — Care Canada
1312 Bank Street Ottawa K1S 5H7

EFFECT OF ROOT CURETTAGE AND SODIUM HYPOCHLORITE TREATMENT

on pedicle flap coverage of localized recession

R.D. Oles, DDS, MS
Saskatoon, Sask.

C.G. Ibbott, DMD, FRCD(C)
Regina

W.H. Lavery, PhD
Saskatoon, Sask.

ABSTRACT

In vitro studies suggest that removal of cemental endotoxin or other cytopathic substances by root curettage or sodium hypochlorite application may increase the likelihood of gingival reattachment when laterally positioned pedicle flaps (LPPFs) are used to cover denuded roots. This study compared the effects of LPPF root coverage with preoperative superficial root debridement, alone, and with additional root curettage or sodium hypochlorite application.

Thirty patients participated in the experiment. Ten received LPPFs after removal of calculus and soft deposits (superficial debridement). Ten received LPPFs with superficial debridement and root curettage. Ten received LPPFs with superficial debridement and sodium hypochlorite root treatment. Gingival recession and sulcus depth were meas-

ured preoperatively and 30, 60 and 90 days after the surgical procedures.

LPPFs in each group produced a sustained, significant postoperative reduction in recession and sulcus depth, but no differences in the amounts of postoperative reduction were found between or within groups.

There appears to be no clinical justification for using sodium hypochlorite pretreatment as an adjunct to LPPF coverage of denuded roots, and it is suggested that the common practice of curetting roots and removing cementum as a routine part of the LPPF root coverage regimen be reconsidered.

SOMMAIRE

D'après des études faites *in vitro*, il se pourrait que l'extirpation de l'endotoxine du ciment radicaire ou l'extirpation de d'autres substances cytopathogènes par

curetage ou par application d'hypochlorite favorise le rattachement gingival lorsqu'on utilise des lambeaux pédiculés en position latérale (LPPL) pour couvrir les racines dénudées. Dans cette étude, on a comparé les effets de la couverture des racines avec des LPPL lorsqu'on effectue seulement le débridement des racines superficielles ou lorsqu'on l'effectue avec un curetage ou une application d'hypochlorite.

Trente patients ont pris part à cette expérience. Dix d'entre eux ont été traités avec des LPPL après extirpation du tartre et des dépôts mous (débridement superficiel). Les vingt autres ont été traités de la même manière, mais dix ont reçu un curetage et dix ont reçu un traitement des racines à l'hypochlorite. On a mesuré le retrait gingival et la profondeur du sillon avant l'opération, puis 30, 60 et 90 jours après.

Après l'opération, on a remarqué dans chaque groupe une réduction importante

et prolongée du retrait gingival et de la profondeur du sillon. Cependant, on n'a relevé aucune différence dans les marges de réduction tant dans les groupes mêmes que d'un groupe à l'autre.

Il semble donc n'y avoir aucun fondement clinique pour ajouter une application d'hypochlorite à la couverture avec des LPPL des racines dénudées, et on croit que la pratique courante voulant qu'on procède au curetage des racines et à l'extirpation du ciment lors du traitement des racines avec des LPPL fasse l'objet d'un nouvel examen.

A previous report concluded that citric acid applied to roots involved in localized gingival recession had no effect on the amount of root coverage obtained with laterally positioned pedicle flaps (LPPFs).¹ It was suggested that, since citric acid, *in vitro*, is ineffective in removing cemental endotoxin,² comparable results obtained with and without citric acid treatment could be explained by a reduction in endotoxin produced by root curettage done in both groups. Although they reported that citric acid does not detoxify cementum, Sarbinoff, O'Leary and Miller² demonstrated that sodium hypochlorite root treatment, with or without subsequent citric acid neutralization, is effective in removing cemental endotoxin from affected roots *in vitro*. This suggests that sodium hypochlorite root treatment may be effective in enhancing treatment results when LPPFs are used to repair areas of localized gingival recession.

The purpose of the present experiment was to compare biometric changes occurring in sulcus depth and gingival margin position after LPPFs were performed with no root preparation, root curettage or sodium hypochlorite pretreatment of the involved roots of human subjects with localized gingival recession.

Materials and Methods

Thirty patients who complained of root sensitivity or unsightly appearance related to localized gingival recession involving a single tooth participated in the study. LPPFs were performed on 26 maxillary and mandibular anterior teeth, three maxillary first premolars and one mandibular first premolar. Ages ranged from 19 to 50 years. Ten of the subjects were assigned randomly to each of three groups. At least one week before the surgical procedure, personal plaque control instruction was provided and each tooth was polished. Immediately before the LPPF, the following treatments were

applied: control group-visible mineralized deposits were removed from the affected root surfaces with a scaler and the cementum was polished at slow speed with a rubber cup and distilled water to remove any soft deposits (superficial debridement); root curettage group-superficial debridement was carried out followed by vigorous root curettage to remove cementum without attempting to reduce root prominence; sodium hypochlorite group-superficial debridement was done followed by topical application of a sodium hypochlorite solution³ which was burnished into cementum with a cotton pellet for five minutes and then washed off with distilled water.

After the appropriate root treatments, local anesthesia was induced and the surgical procedure was begun. One to 2 mm of soft tissue was excised from the border of the area of recession, and an incision was extended from the most apical portion of the surgically prepared area of recession beyond the mucogingival junction into alveolar mucosa. A collar of intact gingiva was left undisturbed around the adjacent donor tooth as a full-thickness pedicle flap was defined. A vertical releasing incision was made between the donor tooth and the adjacent uninvolved tooth, and the pedicle flap was elevated, moved into position over the exposed root with its coronal margin at the cements-enamel junction and sutured into place with 4-0 silk. The sutured flaps were covered with oxidized cellulose* which was fixed in position with a drop of cyanoacrylate.[#] The surgical site was covered with a periodontal dressing.⁺ After 10 days, the dressing and sutures were removed and the teeth were polished. Each patient was instructed to use a moist cotton applicator to clean the treated tooth for the next 10 days, and then to resume the usual plaque control program. Surgical procedures and post-operative care were identical for each group.

Gingival recession was measured with a Michigan OW periodontal probe** immediately before surgery and after 30, 60 and 90 days. Recession was recorded as the greatest distance from the cements-enamel junction to the free gingival margin when the probe was oriented in the

long axis of the tooth. Sulcus depth was measured immediately before surgery and after 30, 60 and 90 days with a Michigan OW periodontal probe tip in an electronic periodontal probe^{##} using a 20 gram force. Sulcus depth was the maximum depth probed on the facial aspect of the affected tooth. All measurements were in millimeters rounded to the nearest integer. They were made by an independent examiner who was unaware of the group to which each patient was assigned.

Data obtained were subjected to analysis of variance. The experimental design was a repeated measures design with one grouping factor and one within subjects factor. Using orthogonal contrasts, the analysis of variance table was partitioned to test for: differences among mean levels of groups; differences in the response at day 0 and the mean response at day 30, day 60 and day 90 for each group; and differences between day 30, day 60 and day 90 within each group for all groups.

Results

There were significant decreases in recession and sulcus depth within each group when day 0 was compared to day 30, day 60 and day 90 (Tables I and II). When day 30, day 60 and day 90 were compared within and between groups, however, no differences were found for either recession or sulcus depth. The average of the post-treatment means was used to calculate 99 per cent confidence limits for post-treatment changes (Table III).

Complete root coverage was achieved for 13 teeth, but there was no difference in complete coverage incidence among groups: control- (four); root curettage- (five); sodium hypochlorite (four).

Discussion

Each method of root treatment reduced the amount of root exposure. There was no advantage to using sodium hypochlorite when it was compared to root curettage and, surprisingly, there was no difference between the results obtained with scaling and polishing alone and with root curettage or sodium hypochlorite. Root coverage obtained (2.3 mm, 3.0 mm and 2.4 mm) was comparable to that previously reported following citric acid treatment (2.1 mm) and root curettage (2.7 mm),¹ and was similar to coverage achieved by Guinard and Caffesse⁴ (2.61 mm) and Espinel and Caffesse⁵ (2.32 mm).

*Surgicel, Johnson & Johnson, 2155 Boulevard Pie IX, Montreal, Quebec, H1V 2E4.

[#]Histoacryl, B. Braun Melsungen AG, 3508 Melsungen, Federal Republic of Germany.

⁺Coe-Pak, Coe Laboratories, 3737 West 127th St., Chicago, IL 60658.

^{**}Hu-Friedy, 3232 North Rockwell St., Chicago, IL 60618.

^{##}Vine Valley Research, 1220 East Lake Road, Middlesex, NY 14507.

There were significant decreases in sulcus depth in each group which were maintained over 90 days. This differed from sulcus depth changes in the earlier study: significant decreases at 30 days were followed by increases over the remainder of the experimental period and, although the 90 day change of the root curettage group (0.2 mm) did not differ significantly from the preoperative value, there was a significant increase in sulcus depth in the citric acid group (0.8 mm).¹ The differing sulcus depth results might be a consequence of using a standard probing force in the present study, while probing force was previously an uncontrolled variable.

Both root curettage and sodium hypochlorite have been reported to remove cemental endotoxin,⁶ although doubts have been raised whether the irritating substance removed from diseased cementum is actually endotoxin.⁷ Olson, Adams and Layman⁸ also suggest that citric acid may be effective clinically in removing from diseased cementum cytopathic substances that suppress human gingival fibroblast growth. It is considered desirable to remove cemental endotoxin or similar cytopathic compounds because it is thought that such substances hinder either epithelial or fibrous connective tissue growth and reattachment to diseased roots. The similar treatment results obtained in each of the present three groups suggest that, when localized recession is treated, this rationale may be faulty. Localized gingival recession is likely to be caused by non-microbial trauma and the involved cementum is often quite clean.⁹ Indeed, except for its lost periodontal ligament attachment, it is probably normal cementum. Perhaps the common practice of curetting roots vigorously before surgical repair of recession should be reconsidered. If cementum removal does not improve treatment results, superficial root debridement may be more appropriate and might provide the additional benefit of reducing the chance of postoperative root sensitivity if root coverage is incomplete.

Conclusions

1. LPPFs without root treatment, with root curettage and with sodium hypochlorite application each produced a sustained, significant reduction in exposed root surface when used to repair an area of localized gingival recession.
2. Each technique produced statistically significant sulcus depth reductions from preoperative levels at 30 days, and the reductions were maintained over the 90 days of the experiment.

TABLE I

Mean Recession Decreases in mm After LPPFs

	Preoperative Means	Postoperative Mean Decreases		
		30 Days	60 Days	90 Days
Control	3.1	2.3**	2.3**	2.3**
Root Curettage	3.8	3.0**	3.0**	2.9**
Sodium Hypochlorite	3.6	2.4**	2.4**	2.4**

** statistically significant ($p < .01$)

TABLE II

Mean Sulcus Depth Decreases in mm After LPPFs

	Preoperative Means	Postoperative Mean Decreases		
		30 Days	60 Days	90 Days
Control	3.0	0.6**	0.6**	0.7**
Root Curettage	3.1	0.9**	0.8**	0.9**
Sodium Hypochlorite	3.3	0.6**	0.7**	0.7**

** statistically significant ($p < .01$)

TABLE III

99% Confidence Limits for Postoperative Changes

	Recession	Sulcus
Control	2.3 $\pm$ 0.6 mm	0.6 $\pm$ 0.3 mm
Root Curettage	3.0 $\pm$ 0.6 mm	0.9 $\pm$ 0.3 mm
Sodium Hypochlorite	2.4 $\pm$ 0.6 mm	0.7 $\pm$ 0.3 mm

3. There was no difference in the ability of each of the techniques to repair an area of localized gingival recession.
4. There appears to be no clinical justification for using sodium hypochlorite pre-treatment as an adjunct to LPPF coverage of denuded roots.
5. The practice of curetting roots and removing superficial cementum as a routine part of the LPPF root coverage regimen should be reconsidered. Δ

Dr. Oles is Professor, Department of Oral Biology, University of Saskatchewan.

Dr. Ibbott is in private practice in periodontics in Regina, Sask.

Dr. Laverty is Associate Professor, Department of Mathematics, University of Saskatchewan.

Reprint requests to: Dr. R.D. Oles, College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N 0W0.

References

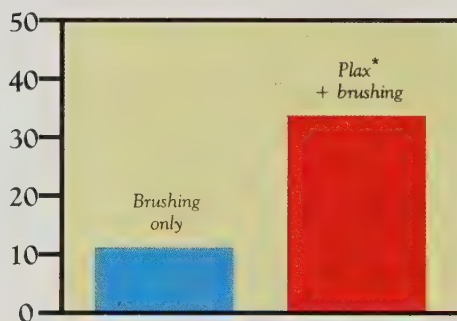
1. Oles, R.D., Ibbott, C.G. and Laverty, W.H. Effects of citric acid treatment on pedicle flap coverage of localized recession. *J Periodont* 56:259-261, 1985.

2. Sarbinoff, J.A., O'Leary, T.J. and Miller, C.H. The comparative effectiveness of various agents in detoxifying diseased root surfaces. *J Periodont* 54:77-80, 1983.
3. Tussing, G.J. Chemical curettage. In Wentz, F.M. (ed), *Principles and Practice of Periodontics*, Springfield, Ill., Charles C Thomas, 1978.
4. Guinard, E.A. and Caffesse, R.G. Treatment of localized gingival recessions. Part I. Lateral sliding flap. *J Periodont* 49:351-356, 1978.
5. Espinel, M.C. and Caffesse, R.G. Lateral positioned pedicle sliding flap-revised technique in the treatment of localized gingival recessions. *Int J Periodont Rest Dent* 1:43-51, 1981.
6. Jones, W.A. and O'Leary, T.J. The effectiveness of *in vivo* root planing in removing bacterial endotoxin from the roots of periodontally involved teeth. *J Periodont* 49:337-342, 1978.
7. Ito, K., Hindman, R.E., O'Leary, T.J. et al. Determination of the presence of root-bound endotoxin using the local Schwartzman phenomenon (LSP). *J Periodont* 56:8-17, 1985.
8. Olson, R.H., Adams, D.F. and Layman, D.L. Inhibitory effect of periodontally diseased root extracts on the growth of human gingival fibroblasts. *J Periodont* 56:592-596, 1985.
9. O'Leary, T.J., Drake, R.B., Crump, P.P. et al. The incidence of recession in young males: a further study. *J Periodont* 42:264-267, 1971.

Introducing Plax*. T in home dental ca

The age-old problem of plaque removal has a new solution. Plax*. The only dental rinse designed specifically to remove plaque.

Removes 3 times more plaque than just brushing.¹



In hard-to-brush areas, the improvement over regular brushing was even more dramatic with Plax*.

Formulated from trusted ingredients.

Plax* is considered to be exceptionally safe even in "exaggerated use" circumstances.² When test subjects greatly exceeded its recommended use,[†] there were no signs of tissue sensitivity or damage to tooth enamel.²

An archaic Middle Eastern toothbrush, the siwak (or misswak) is made from a water-soaked twig of the Salvadora persica tree. The siwak's inherent benefits to the teeth and gums were first recognized by Muhammad who decreed its ritual use to all Muslims.

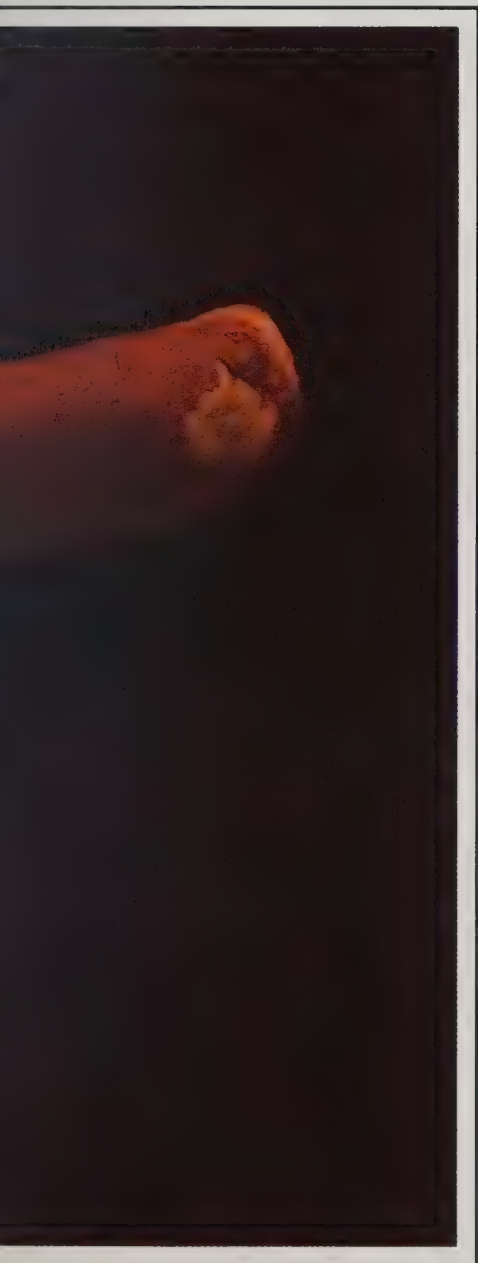
the greatest advance since the siwak.

Plax* encourages compliance.

Pleasant-tasting and convenient, Plax* is easily incorporated into your patients' daily oral health care regimen.

For best results, patients should rinse with 1 tablespoon (15 mL) of Plax* for 30 seconds *before* brushing with their regular dentifrice.

New Plax*. The anti-plaque, pre-brushing rinse that is making dental history.



Checks Plaque
Between Checkups.

"Your Keys to Success"

Hard work, dedication, commitment and expertise. There are many keys to success. Like you, CDSPI also believes in these qualities.

At CDSPI we work hard for you, helping you to remain a success in your profession.

Your years of hard work are starting to pay off. CDSPI has been protecting you all the way along. Now we can help protect what you've built.

CDSPI is your service organization, offering you a range of services and the expertise you need to utilize these services to your best advantage. For complete information on how we can help you, call today.

INFORMATION EXPERTISE COMMITMENT SERVICE



For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

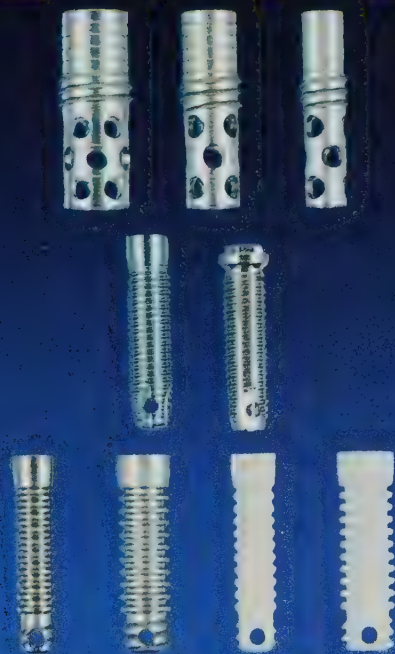
1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario *except* Area Code 807

497-7117 Metro Toronto

This material has been approved by our consultants/brokers and insurers.

INDEPENDENT CLINICAL REPORT CITES CORE-VENT ADVANTAGES



"Complete System"
"Moderate Cost"
"Clinical Success"

Clinical Research Associates of Provo, Utah, reported on the Core-Vent System of Osseointegrated Implants in its March, 1988, newsletter. The section entitled "Advantages" is quoted verbatim below:

- A. Complete system.** Other products available address specific aspects of implant procedures, but none offer broad range of Core-Vent System.
- B. Moderate cost.** Considerably less than Branemark, and less than most other systems also.
- C. Company responds rapidly to dental clinical needs.** New designs and changes in old designs have been developed as practitioners expressed need.
- D. Surgical procedures are made simple.** Many sizes and types of implants offer range of alternatives and accommodate most clinical needs. Clinical success of system throughout profession demonstrates concept is relatively easy to understand and use.
- E. Adapts well to both fixed and removable prosthodontics needs.** Bendable and castable abutments allow angulation of coronal positions and choice of 12 threaded and 10 cemented abutment options for Core-Vent, Screw-Vent and Micro-Vent. Numerous designs allow versatility necessary to adapt implant to individual patient needs.
- F. Broad education resources offered, but not requisite for purchase.** Include videos for clinician and patient, hands-on and lecture courses, annual symposium and manuals.
- G. Primate studies show Core-Vent comparable to well established Branemark System.** (J Dent Res vol 67, March '88-[1] Boyne, et al, Abs. #557, p. 182; and [2] Beirne, et al, Abs #558, p. 182.)

Want to know more about implants? Send for our new one-hour "OVERVIEW" videotape along with a 40-page booklet "Controversies in Implantology." Send \$10 for shipping and handling (\$15 for COD orders). All payments must be made in U.S. Funds.



CORE-VENT®

C O R P O R A T I O N

15821 Ventura Boulevard, Suite 420, Encino, California 91436
(818) 783-1517 • FAX (818) 789-3928 • U.S. 1-800-551-3838
No. CA 1-800-451-4900 • So. CA 1-800-346-5222 • Canada 1-800-423-3935

SP Mark II A Generation Ahead

The SP Mark II marks a real breakthrough in patient/doctor relations and a whole new approach to dentistry.

- An environment for communication and consultation.
- Designed for asepsis: one-touch membrane controls for the assistant and dentist.
- Synergism: The cooperative action between the chair and unit along with the power headrest and folding leg-rest complements the natural body movements for professional care and patient dental health.



Belmont

FOR MORE INFORMATION CONTACT YOUR LOCAL BELMONT EQUIPMENT DEALER OR CONTACT:

TAKARA COMPANY CANADA LTD.
2076 SOUTH SHERIDAN WAY
MISSISSAUGA, ONTARIO L5J 2M4

TELEPHONE: TORONTO AREA (416) 822-2755 — OUT OF TOWN 1-800-268-5351

Come visit us at booth nos. 12 and 13 at the CDA Convention in Edmonton

CONSERVATIVE TREATMENT OF CENTRAL GIANT CELL GRANULOMA OF THE MANDIBLE

Report of a case with a 10-year follow-up

A.E. Swanson, DDS, MS, FRCD(C)
Vancouver, B.C.

ABSTRACT

A case report is presented of a large, central, giant cell granuloma of the mandible which required re-operation after the recurrence, or persistence, of disease nine months after the initial operation. This lesion was managed by conservative surgery. The approach is offered as one surgical method in treating an aggressive but benign lesion. The successful results obtained suggest that radical resection and bone grafting may not always be necessary and that both radical and conservative surgical approaches appear to have merit.

SOMMAIRE

Voici le cas d'un patient ayant eu un gros granulome central à cellules géantes à la mandibule qu'il a fallu opérer de nouveau après récurrence, ou persistance, de la maladie neuf mois après la première opération. On a traité cette lésion par chirurgie conservatrice, et cette approche constitue un

moyen chirurgical de traiter une lésion agressive mais bénigne. Les heureux résultats obtenus laissent croire qu'il n'est peut-être pas toujours nécessaire de recourir à une résection radicale ou à une greffe osseuse et que les approches chirurgicales tant radicale que conservatrice semblent avoir des avantages toutes deux.

Lovely and his co-authors,¹ in describing their 10-year follow-up of central giant cell granulomas, state that "enucleation and partial excision of these lesions frequently proved to be inadequate definitive management, with cases eventually requiring hemimandibulectomy with osseous graft reconstruction."

The case reported here is, on the basis of comparison of the preoperative radiographs and clinical description, similar to that reported by Lovely (Fig. 1). Whereas in their case "enucleation was unsuccessful", the case presented herein resulted in a cure through radical curettage, although two surgical efforts were required.

Case Report

A 22-year-old white female presented with the chief complaint of a six-week history of swelling in her lower left face. Her dental history revealed that tooth #37 had been extracted about four weeks previously because of a toothache but no radiographs had been taken by the attending dentist. She was put on a regimen of penicillin for 10 days. Although the facial swelling subsided slightly for a few days post-extraction, it then began to increase once again. Her physician had ordered routine mandible films which revealed a very large, destructive lesion of the left mandible. On this basis, the patient was referred to us for diagnosis and management.

At this initial visit, a panoramic radiograph was taken, revealing a very large, destructive, osteolytic lesion occupying the left ascending ramus and posterior body of the mandible, from the base of the coronoid process to the second premolar. A biopsy was done at the same visit, consisting of two specimens: one from the exophytic mass extruding from

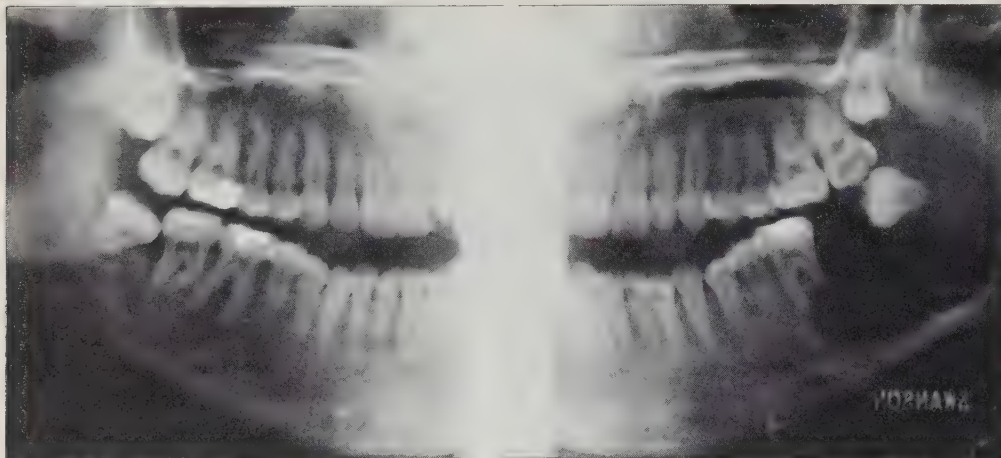


Fig. 1. Panoramic radiograph showing large osteolytic defect of the ascending ramus and body of mandible in the midst of which is an isolated third molar.



Fig. 2. Radiographic evidence of bony regeneration posteriorly but questionable recurrence or persistence of disease anteriorly (seven months postoperative).

the mandibular second molar tooth socket and one from the intra-bony lesion itself. The pathology report read in part: "multiple portions of the tissue have been sampled and show a very uniform picture with a rather fine, fibrous matrix containing very large numbers of closely packed benign-appearing multinucleated type giant cells." The diagnosis was giant cell reparative granuloma of jaw.

On November 9, 1977, the patient was taken to the operating room where a curettage of this lesion was performed under general anesthesia. After wide reflection of large lateral and medial mucoperiosteal flaps, an attempt was made to enucleate the lesion as one unit. However, it quickly became evident that the friable nature of this granulomatous mass would not permit such delivery and it fragmented repeatedly, finally being removed in piecemeal fashion. Bleeding was profuse and the bony cavity required repeated pressure packing with gauze in order to achieve hemostasis. The estimated blood loss was 1,400 ml. and

this was replaced with two units of whole blood. So extensive was the bony destruction of the lateral, medial and superior walls that the lesion merged with the adjacent soft tissues, making surgical separation impossible. It was clearly evident that the removal had been incomplete.

The wound was packed open and the patient was treated in the office postoperatively for the usual dressing changes and irrigations. An endocrinology consultation revealed a normal parathormone determination and systemic disease was ruled out.

At seven months postoperatively the patient reported an episode of exquisite tenderness at the inferior border of the mandible immediately beneath the operative site. A panoramic film was taken that showed a satisfactory consolidation of the posterior portion of the defect but questionable persistence of disease anteriorly (Fig. 2).

Over the following two months, a visible, palpable mass involving chiefly the

horizontal ramus of the left mandible toward the angle region, became evident. It extended just onto the ascending ramus and could be palpated both subcutaneously and within the oral cavity. There was no ulceration of skin or mucosa.

By nine months postoperatively it was concluded that disease did, in fact, persist in the antero-inferior aspect of the area occupied by the original lesion. Accordingly, it was re-operated on August 28, 1978. Because a more radical curettage was to be done at this surgery and the obvious vulnerability of the mandible to fracture at the area of persistent disease, arch bars were applied as a precautionary measure and the jaws were placed in intermaxillary fixation at the conclusion of the operation. The second bicuspid tooth was sacrificed and a radical excision was performed (Fig. 3). Only a thin strut of inferior margin of mandible was left.

The patient did well postoperatively and no pathologic fracture eventuated. The pathology report was somewhat equivocal in its diagnostic designation, e.g. "the history is consistent with giant cell tumor of bone, central reparative granuloma, and hyperparathyroid-induced brown tumor of bone. Clinical and radiological correlation is required for definitive diagnosis. Diagnosis: Giant Cell Lesion of Mandible (likely true giant cell tumor)".

The endless controversy amongst the oral pathologists regarding this entity clouds the true diagnosis; however, it is agreed that this lesion could be consistent with a central giant cell granuloma of the mandible.

Arch bars were removed on November 14, 1978, and the patient had an uneventful convalescence. A follow-up radiograph in April 1979 showed good bony regeneration. The patient was lost to follow-up for two years but returned in November 1981 and remains free of disease to this date, as evidenced in the most recent panoramic radiograph (Fig. 4).

Discussion

The treatment of the giant cell granuloma is generally accepted to be either curettage or surgical excision.²⁻⁵ However, smaller lesions can be enucleated and permitted to heal by primary attention, whereas large lesions may require curettage, packing open and be permitted to heal by secondary attention. Segmental resection is generally reserved for those cases where the anatomic site and extent of the lesion preclude preservation of bone continuity.

Laskin⁵ states "aggressive giant cell lesion is a term that may be applied to those tumors which appear to undergo rapid clinical growth or recur a second or even a third time after initial excision". This author initially chose conservative curettage in treating this case simply on the basis of assuming it to be a reparative granuloma as indicated on the biopsy report. However, in monitoring the course of the healing process postoperatively, the relative rapidity with which recurrence progressed clinically suggested that a more radical curettage was indicated. This radical curettage was achieved by taking deeper scoops or curettings down to a hard bony base throughout the lesional bed. This non-resection approach was utilized because portions of the operated site had shown significant bony regeneration and the diagnosis was still a benign lesion. Had the disease extended entirely through the corpus or ramus of the mandible or had a second recurrence eventuated, then the more radical treatment of resection and bone grafting would have been contemplated.

The purpose of this case report is to emphasize that the central giant cell granuloma may be effectively treated with conservative surgery. Interestingly, the case reported by Lovely, et al.¹ had undergone two "recurrences" prior to the radical resection and placement of a rib graft. It involved essentially the same anatomy, was about the same dimension and the follow-up was approximately of the same duration. Obviously, both methods of management resulted in success. This author agrees with Lovely, et al that "enucleation and partial excision of these lesions frequently prove to be inadequate definitive management" and "enucleation with a wide margin is at least required." In contradistinction to their case, however, wide excision in the form of aggressive curettage was successful and more radical surgery was not required.

Arch bars were not placed prior to the first operation since it was the author's opinion that there was little threat of intra-operative fracture using the conservative curettage technique. However, with the intended aggressive curettage contemplated for the second surgical intervention, it was deemed prudent to have this additional precautionary measure in place.

A review of the literature reveals that there is still a great deal of controversy over the diagnosis and natural history of giant cell lesions of the jaw. Jaffe led us to believe that the giant cell lesion of the jaw

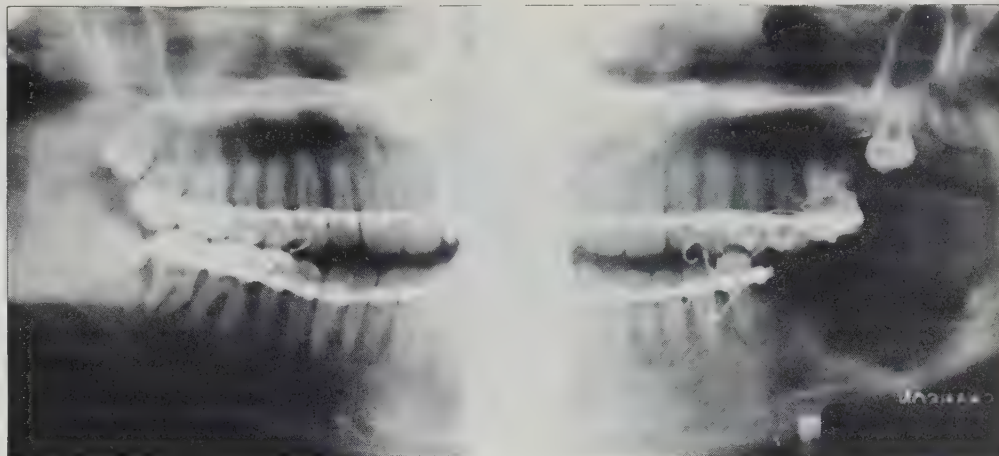


Fig. 3. Radiograph immediately postoperative following second operation. Note second bicuspid was sacrificed and arch bars were applied as a precautionary measure because of the tenuous nature of the inferior border of the mandible.

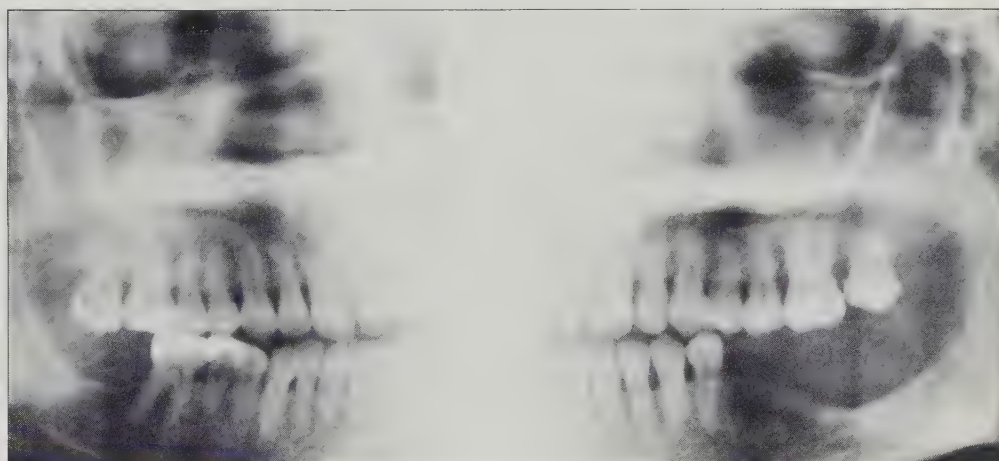


Fig. 4. Ten-year postoperative radiograph showing good bony regeneration and consolidation of body and angle areas of mandible.

was a relatively innocuous reparative reaction to be separated from true giant cell tumor.⁵ However, subsequent reports indicate that some giant cell lesions of the jaws do not act in the innocuous manner that one would expect from a reparative process. Current experience would suggest that these lesions exhibit a wide range of activity from that of the benign reparative granuloma to that of an aggressive neoplasm. How to distinguish one from the other, before the fact, remains an unanswered question. It may be that Waldron and Shafer are correct when they state that they probably represent a single entity with varying expression. It may be instructive also to recall the case published by Hayward⁶ of a malignant giant cell tumor of the mandible in a 14-year-old boy, resulting in metastasis and death one year after first being treated.

Summary

A case of an extensive central giant cell granuloma of the mandible is reported.

The lesion was managed with a "conservative" surgical technique and the patient remains free of disease 10 years postoperatively. Δ

Dr. Swanson is Associate Professor, Faculty of Dentistry, University of British Columbia, 2199 Wesbrook Mall, Vancouver, B.C. V6T 1Z7.

Reprint requests to Dr. Swanson.

References

1. Lovely, F.W., Blankstein, K.C. and Lovely, G.F. Definitive treatment of recurring reparative central giant cell granuloma. *JCDA* 52:323-324, 1986.
2. Spouge, J.D. *Oral Pathology*, St. Louis, C.V. Mosby, 1973.
3. Bhaskar, S.N. *Synopsis of Oral Pathology*, St. Louis, C.V. Mosby, 1969.
4. Shafer, W.G., Hine, M.K. and Levy, B.M. *A Textbook of Oral Pathology*, ed. 4, Philadelphia, Saunders, 1983.
5. Laskin, D.M. *Oral and Maxillofacial Surgery*, Vol. 2. St. Louis, C.V. Mosby, 1985.
6. Hayward, J.R. Malignant giant cell tumor of the mandible: report of a case. *J Oral Surg* 17:75, 1959.

Leasing. A Profitable Practice.

J Paul Getty said it best: "Buy what appreciates... Lease what depreciates." It's the best way to improve the bottom line of any business.

And that's especially true when you deal with the Health Services Group of First City Trust. Our people have been the first choice of many thousands of health professionals across Canada.

If you're beginning, expanding or upgrading your practice, you'll find us very helpful. The Health Services Group of First City Trust is staffed by industry-leading lease specialists, backed by the resources of one of Canada's largest financial institutions.

We can provide all the advice you need and leasing arrangements tailored to meet your particular requirements. Call us to find out more.

**VISIT
US AT
THE CDA
CONVENTION
IN EDMONTON
- BOOTH #92**

Halifax Montreal Ottawa Toronto
Burlington Winnipeg Saskatoon
Edmonton Calgary Vancouver

First City Trust
HEALTH SERVICES GROUP

DENTALMAC™

Problem: How do you get the sophisticated requirements of automation, in an easy-to-train, easy-to-use, incredible dental office management system?

Solution: DentalMac™ by HealthCare Communications - the first dental office computer system for the Macintosh from Apple. Using the legendary point and click concept of the mouse, Apple and HCC have developed a user-friendly, efficient, and powerful operating system that tracks day-to-day activity, patient recalls, insurance processing, scheduling, treatment planning plus much more!

DentalMac merges with popular software like **Word, Excel, Filemaker and Works**, to provide the practitioner with custom reports and access to information. The business of dentistry demands access to data and **measurement improves performance!**

Come and visit us at the 1988 Canadian Dental Association Convention in Edmonton!

DentalMac is developed by HealthCare Communications Inc. and marketed in Canada by:

HCC HealthCare Communications Canada Limited
7300 Westminster Highway
Richmond, B.C. V6X 1A1
Tel: (604) 278-6227
Fax: (604) 278-6864

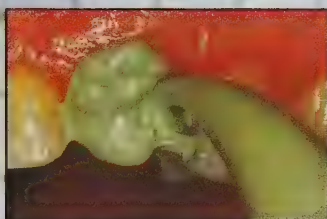


CRESDON SYSTEMS INC
4141 Yonge Street, Suite 107
North York, On. M2P 2A8
Tel: (416) 224-2427
Fax: (416) 223-7019

TOP GUN

Mirror 3 Extrude™ Delivery System

A complete impression system featuring our new professional dispenser and medium viscosity hydrophilic polyvinylsiloxane material.

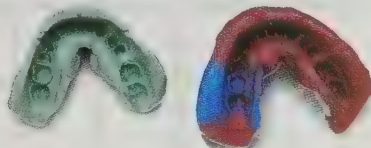


Mixing/dispensing with a difference.

Nothing beats the convenience and cost-effectiveness of Kerr's new Mirror 3 Extrude Delivery System. Here's a system designed to save you time and money by eliminating the need for hand mixing while adding consistency without air entrapment. This new system lets you take error-free impressions the first time... every time.

Convenient and easy to use.

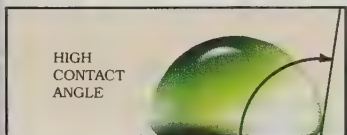
Mirror 3 Extrude Medium and Wash materials are packaged in convenient cartridges and mixed through disposable mixing tips. Since



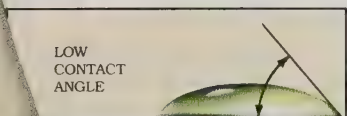
medium viscosity material offers more resistance to gun trigger squeeze, Mirror 3 Extrude Medium cartridges come with special low-resistance mixing tips to make dispensing smooth and easy—a Kerr exclusive.

Mirror 3 Extrude Medium Viscosity—Kerr's star performer.

Our new Mirror 3 Extrude Medium Viscosity impression material has the right chemical properties for excellent elastic recovery from undercuts, outstanding dimensional stability, high tear strength, and excellent reproduction of detail. More than that, Mirror 3 Extrude Medium is:



Hydrophobic surface



Hydrophilic surface

Thixotropic

To prevent slumping yet allow it to flow smoothly and easily from the syringe.

Hydrophilic

So it spreads easily on moist surfaces without developing voids or retreating from oral fluids. Its *wettability* also makes it easier to pour the impression to produce void-free dies with enhanced detail.

You can't beat The System.

See why the Mirror 3 Extrude Delivery System shoots holes in other systems. For further information, contact your Kerr dealer or write to Kerr.

KERR®

TOMORROW'S TECHNOLOGY TODAY

Kerr/Canada
6845 Rexwood Road, Unit 2,
Mississauga, Ontario, Canada L4V1R2

©1987, Kerr Manufacturing Company

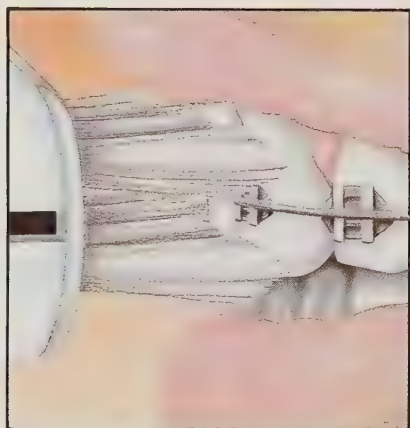
Clinically Speaking: **INTERPLAK® Proven Statistically Superior to Hand Brushing**

The purpose of this investigation was to evaluate the effectiveness of the INTERPLAK® Home Plaque Removal Instrument in the removal of plaque in orthodontic patients, and to compare its effectiveness with that of a conventional, manual, soft-bristled toothbrush.

Following is an edited excerpt from a clinical study published in the Compendium of Continuing Education in Dentistry, Supplement No. 6, 1985. The study was performed by David E. Long, DDS, and William J. Killoy, DDS, MS, University of Missouri, Kansas City.

METHODOLOGY:

The study involved fourteen orthodontic patients with a plaque index greater than 50% and an interarch difference of less than 15%. The patients' teeth were stained with a disclosing solution and a plaque score taken using a modification of the O'Leary Plaque Index. Patients were instructed to brush one arch with the manual toothbrush using a modified Bass technique, and the other arch using INTERPLAK®. After brushing, their teeth were again disclosed and a second plaque score was obtained. Both scorings were performed by the same examiner, who was blind to the location of the toothbrushing.



The gently tapered tufts straddle the archwire, safely cleaning interproximal and subgingival areas.



Mandibular occlusal views of one patient, before and after brushing with INTERPLAK®.

RESULTS:

The improvement in postbrushing plaque scores after use of the INTERPLAK® Instrument was significantly better than that of the manual brush ($P < 0.01$). The mean postbrushing scores were 34.0% for the manual brushing and 16.5% for INTERPLAK®. Ten of the 14 arches brushed with INTERPLAK® had plaque scores of less than 20%, while only one of the 14 arches brushed manually had an equally low score.

FOR MORE INFORMATION...

This is one of eight clinical studies completed to date regarding the safety and efficacy of INTERPLAK®. For a complete copy of the published results call 1-800-387-0123. In Toronto call 416-447-4971.

INTERPLAK®
HOME PLAQUE REMOVAL INSTRUMENT

NOW WITH INTERCHANGEABLE BRUSH HEADS!

Somerset House
74 Gervais Drive, Don Mills, Ontario M3C 1Z3

© Dental Research Corporation 1987

"Please see the INTERPLAK® Home Plaque Removal Instrument at the Somerset House Exhibit, booth number 34 at the CDA Convention in Edmonton."



The INTERPLAK® oral hygiene device is acceptable as an effective cleaning device for use as part of a program for good oral hygiene to supplement the regular professional care required for oral health.
Council on Dental Materials, Instruments and Equipment
American Dental Association

USE OF PROPHYLACTIC ANTIBIOTICS IN ORAL SURGERY

Bohdan Kryshchalskyj, BSc, DDS, Dip. Oral Surg.
Toronto

ABSTRACT

The use of prophylactic antibiotics in oral and maxillofacial surgery remains controversial. There are many medical reasons for covering patients pre-operatively in the hope of preventing an infection in the postoperative course. This paper reviews the indications and rationale for antibiotic coverage in clinical oral surgery and dentistry.

SOMMAIRE

En chirurgie buccale et maxillo-faciale, l'utilisation d'antibiotiques prophylactiques prête encore à controverse. On avance de nombreuses raisons médicales pour protéger les patients avant les opérations afin de prévenir une infection par la suite. Dans cet article, on examine les indications et les raisons données pour protéger les patients avec des antibio-

tiques en médecine dentaire et en chirurgie buccale.

“**P**rophylaxis” may be defined as the use of an antibiotic agent in a clean or potentially contaminated operation, with the expectation of preventing an infection in the postoperative course. In order to exploit the maximum potential efficacy of the chemoprophylactic agent(s) utilized to reduce infection (as a result of bacteremia), several basic and important criteria of prophylactic antibiotic (PA) treatment must be fulfilled. These are as follows:

- i) The organism most likely to cause infection along with its antibiotic susceptibility must be known so that a suitable antimicrobial agent can be chosen in advance.
- ii) The operative procedure must have a risk of significant bacterial contamination as well as a high incidence of infection.

- iii) Prior to surgery, wherever possible, the site should be cleansed thoroughly, and an antiseptic/iodine 1 per cent solution applied to the area for strict asepsis.
- iv) The antibiotic should be “narrow spectrum” in nature, and present in the tissue at the time of contamination (operation). It should be in bactericidal concentrations and must be continued for a brief period after cessation of contamination.

The above preparation and precautions are imperative so as not to sensitize the various microbes to the important broad spectrum antibiotics. Also, prolonged use of microbials will eventually lead to resistant strains of bacteria.

Among the advantages associated with PA are: decreased patient mortality and morbidity; prevention of wound or metastatic infections (especially in high risk patients); decreased hospitalization; decrease in the numbers of resistant bacteria; decreased total medical expense;

TABLE I

Indications for Prophylaxis

1. Pre-operative wound prophylaxis in oral and maxillofacial surgery
2. Prevention of osteoradionecrosis in patients for post-radiation extractions
3. Prevention of sub-acute bacterial endocarditis (or endarteritis) in high risk cardiovascular patients
 - A. Patients with rheumatic heart disease or history of rheumatic fever or bacterial endocarditis with or without current signs and symptoms
 - B. Patients with congenital heart defects
 - C. Patients with history of cardiac surgery (includes prosthetic valves, vascular alloplastic grafts, pacemakers, heart transplants)
 - D. Patients with pathologic heart murmurs
 - E. Patients with syphilitic aortitis (rare)
4. Patients with total hip or joint prosthesis (knees, elbows)
5. Patients with severe kidney disease — severe chronic glomerulonephritis causing renal insufficiency, anephric patients, or those undergoing hemodialysis with an arteriovenous shunt, renal transplant
6. Patients with metabolic derangements:
 - A. Uncontrolled diabetes mellitus
 - B. Uncontrolled Addison's disease (adrenal insufficiency)³
 - C. Active systemic lupus erythematosus with infections³
 - D. Cirrhosis with hypoproteinemia³
 - E. Severe starvation with avitaminosis³
7. Immunosuppressed patients:
 - A. Prevention of transplant rejection
 - B. Chronic steroid therapy
 - C. Chemotherapeutic drugs (antimetabolites, immunosuppressive drugs) for treatment of malignancies. E.g. multiple myeloma, Hodgkin's disease, leukemia
 - D. AIDS

and less total antibiotics used.¹ Several potential disadvantages to their use are adverse side effects and a possible delay in the onset of infection along with the masking of other pre-existing infections. Thus, this treatment may actually result in alteration of the normal host flora while simultaneously encouraging the development of increased numbers of resistant bacteria (as noted in iv). Furthermore, there may be no reduction of infection despite prophylactic coverage, and the indiscriminate use of these drugs may have adverse effects on surgical technique.

Table I summarizes the various indications to the use of PA for medical conditions in patients presenting for oral and maxillofacial surgery.

Pre-operative Wound Prophylaxis in Oral and Maxillofacial Surgery

Table II displays the categories of wound classification as proposed by the "Committee on Pre-operative and Post-operative Care, American College of Surgeons".² An attempt has been made to categorize various oral surgical procedures into their respective wound classifications. The percentage incidence of infection is included per category, along with the need for PA, with reasons for the indications, if any. The table reflects the fine line of prophylactic versus therapeutic

use of antibiotics in pre-operative wound prophylaxis.

The likely causative organisms responsible for potential bacteremia during oral surgery is the normal host flora. Although the variety of microbes is very diverse, their antibiotic sensitivity pattern may be considered that of a single penicillin-sensitive bacterium. If any extra-oral procedures are contemplated, and if they match the criteria in Table II for PA, then *Staphylococcus sp.* should be considered as a likely pathogen. If bone graft material is taken from the ileum, then gram negative rods should also be anticipated.

Theoretically, the patient with normal host defences does not require PA for the following routine office procedures: extractions, impaction surgery, minor preprosthetic surgery, biopsy procedures, soft tissue procedures (gingival or osseous periodontal surgery), and short orthognathic procedures (segmental alveolar process).^{3,4} The exceptions to the above have already been enumerated in Table II.⁵ Other indications are: if the potential exists for the formation of large hematomas, if fascial spaces are opened through an intra-oral approach, and if intra-oral and extra-oral surgery is done simultaneously.

The rationale for using chemoprophylaxis for bone grafting is that the bone graft may compromise leukocyte activity

against the incorporated bacteria. Furthermore, there is greater manipulation, which would tend to increase the chance of contamination when moving bone from one surgical site to another. The potential for it to become a sequestrum is, therefore, high with disastrous sequelae.⁴ Similarly, in patients receiving large implants of metal, plastic or alloplastic material, the leukocyte function in the peri-implant space is decreased, making it more susceptible to infection. Thus, if PA are not used, bone grafts and alloplastic implants may fail or the outcome may be severely compromised as a result of infection.

Recent studies have documented that the use of PA in certain orthognathic procedures is questionable and may produce unwanted side effects.⁹ Further research is needed in the following areas, as only a few patients have been studied: intra-oral subcondylar osteotomies, LeFort I downfracture, and combined intraoral and extra-oral surgery. Although a high percentage of postoperative infections without PA in sagittal split osteotomies have been recorded, the need for PA has not been statistically established.⁸ There is evidence that infection rate is decreased when preoperative, intra-operative and postoperative PA treatment is used.¹⁰ Furthermore, postoperative dose frequency should be minimized as there seems to be no benefit from long courses.¹¹

With respect to TMJ surgery, there does not appear to be support in the literature for the use of PA.¹² However, fear of potential infective arthritis remains the rationale for their use.

The dosage interval of antibiotic administration for prophylaxis should be 2-3 times the ($T^{1/2}$) or biologic half life of the drug. For penicillin G IV, with a $T^{1/2}$ of 30 min, subsequent doses are given every 60-90 min. This dosage interval results in increased peak concentrations, and prevents low trough levels, resulting in better soft and hard tissue penetration of antibiotic during the period of contamination.⁵

The Prevention of Osteoradionecrosis in Post-Irradiated Patients Requiring Oral Surgery

In general, bone is relatively resistant to radiation, when compared with other tissues. However, a heavy dose can alter the equilibrium between bone apposition and bone resorption. The greatest concern is the extent of damage of the intrabony vascular network. If permanent, then the area is especially suscep-

TABLE II

Wound Classification and its Implication with Respect to the Administration of Prophylactic Antibiotics in Oral and Maxillofacial Surgery

Wound Classification	Description	Oral Surgical Procedures	Incidence Infection	Prophylactic Antibiotics
Cl. I (Clean)	Non-traumatic wound in which no inflammation was encountered, no break in technique occurred, and respiratory, alimentary and GU tracts were not transected	— Extra-oral osteotomy for Cl. III correction of malocclusion⁶ — Condylotomy⁴ — TMJ	1-5%	No, (does not result in decrease of incidence of infection) ⁷ Yes, i) Patient with depressed host resistance (rare) ii) When foreign bodies inserted — Bone grafts — Metal prosthesis Because of local compromise of host response (long & multi ops)
Cl. II (Clean-contaminated)	Non-traumatic wound in which minor break in technique occurred or in which the GI, GU or respiratory tracts were entered without significant spillage.	— Transoral osteotomy — All "procedures"	4-15%	No, (for alveolar segmental surgery or posterior Mx osteotomy) ⁸ Yes, (but evaluate) i) Extensiveness of surgery (in multiprocedures ii) Length of time (if 3 hrs) iii) History of infection for that particular procedure iv) Patient has depressed host defences v) Insertion of prosthesis vi) Decreased local blood supply⁵
Cl. III (Contaminated)	A fresh traumatic wound from a relatively clean source or an operative wound in which there is a major break in technique, gross spillage from GI tract, or entrance into the GU or biliary tracts in the presence of infected urine or bile. Includes incisions in which acute non-purulent inflammation is encountered.	Compound maxillo-mandibular fractures ⁹ — CSF fluid leaks due to LeForte III fractures — Dural tears causing CSF leaks — Pericoronal infections	25-50%	Yes (considered therapeutic)
Cl. IV (Dirty)	Traumatic wound from a dirty source or traumatic wound receiving delayed treatment. Includes operative wounds in which acute bacterial inflammation is encountered or in which clean tissue is transected to gain access to a collection of pus	Abscesses, space infections	High	Yes (routine use, considered therapeutic) — Except for well-localized chronic superficial abscess for which I & D should be done

tible to infection due to the significant decrease in local *nonspecific* inflammatory defensive response.¹³ Some investigators have expressed the concern that the risk of bone necrosis after exodontia within the radiation field has been reported to be as high as 100 per cent, and as low as 0 per cent.¹⁴ Animal studies have shown that some vascularization does take place within the radiated tissues after therapy, with fewer bone necroses occurring after, rather than before, two years have elapsed (since the completion of radiation therapy).¹⁵ Others have shown that time has little effect on the incidence of osteoradionecrosis. Thus, no attempts would be made to defer exodontia for as long as possible, in the hope of reducing the risk

of necrosis (by waiting until vascularization improves by natural means). With this in mind, PA are considered very useful, especially in the affected mandible, reducing the risk of necrosis to 10 per cent in conjunction with the type of surgery advocated for this condition.¹⁴ Moore stresses the use of antibiotic cover to be continued until healing is complete (about 10 days).¹⁶ Still others claim that the efficacy of antibiotics in these cases is overrated, claiming that if the vascular bed can transport the antibiotic, it can also produce an inflammatory response with satisfactory healing. Moreover, if the blood supply has been reduced, even massive doses of an antibiotic will not prevent post-extraction infection and osteoradionecrosis.¹³

Prevention of Sub-Acute Bacterial Endocarditis (SBE) or Enderteritis in Cardiovascular Patients

A. Patients with rheumatic heart disease or history of rheumatic fever (RF) or bacterial endocarditis with or without current signs and symptoms

The pathogenesis of acute rheumatic fever (ARF) may be explained from an immunological basis. Group A B-hemolytic Streptococcal infections are associated with infections of the throat (pharyngitis) and fever. During this time, certain antibodies are formed in susceptible patients against group A B-hemolytic Streptococci, which probably cross-react

TABLE III

Major and Minor Manifestations of Acute Rheumatic Fever

Major Manifestations	Minor Manifestations
1. Carditis	I. Clinical
2. Polyarthritits	i) Previous RF or rheumatic heart disease
3. Chorea i.e. (St. Vitis dance)	ii) Arthralgia
4. Erythema marginatum	iii) Fever
5. Subcutaneous nodules	2. Laboratory
	i) Acute phase reactions
	Erythrocyte sedimentation rate
	C-Reactive protein
	Leukocytosis
	ii) Prolonged P-R interval plus supporting evidence of preceding strep infec'n (> ASO or other strep. antibodies, +VE throat culture for GRP A Strep, recent scarlet fever)

with myocardial tissue, smooth muscle of endocardium and vessel walls, giving rise to sterile heart lesions. The characteristic lesion of RF is the Aschoff body (microscopic fibrinoid and necrosis surrounded by a chronic inflammatory cellular infiltrate). According to the Jones's criteria, the presence of two major manifestations or one major and two minor are associated with a high probability of RF, if supported by evidence of a preceding Streptococcal infection.¹⁷ Of the major manifestations, the only one of serious consequence is the carditis involving cardiac muscle (Aschoff nodule) and heart valve deformity, as two main areas of pathology. In the latter, acute rheumatic valvulitis is the most serious consequence of repeated attacks of ARF, which affects the mitral valve most commonly, followed by a combination of mitral and aortic valves. In both of the above pathoses, the inflammatory changes damage the endothelium, which incites deposition of platelet thrombi on the surface. These vegetations are sterile and measure 1-3 mm. in diameter. The translucent nodules are located on the line of closure or contact on the atrial surfaces of atrio-ventricular valves or ventricular surface of semilunar valves. These vegetations rarely fuse together, are attached firmly, and do not embolize. Repeated attacks of ARF may lead to mitral stenosis and insufficiency. These lesions, along with congenital heart defects, prosthetic valves, and sites of cardiac surgery, predispose the patient to SBE. The damaged areas of endocardium cause a local slowing of the bloodstream, with flow disturbances such that during a bacteremia, the microbes settle out on the affected areas. *Streptococcus Viridans* has been implicated as the chief microbe causing SBE. Symington¹⁸ has inves-

tigated in detail, the types of *S. Viridans* isolated from post-extraction bacteremias. Instead of considering them all as α hemolytic *S. Viridans*, he showed that this group can be further subdivided on the basis of cultural, biochemical and serological characteristics. The Lansfield groups isolated were F, H, I, K, M, O with groups F, H, and O predominating. These organisms were resistant to streptomycin and sulpha-furazole. Antibiotic resistant Staph., enterococci, and fungi may also cause infective endocarditis. Once these bacteria lodge in the areas mentioned above, they multiply and eventually more fibrin and platelets adhere to the surface, causing a friable vegetation. These may embolize to the brain, viscera, kidneys and spleen, resulting in infarction of these organs. Chronic degeneration of heart valves may result in eventual death, due to congestive heart failure or pulmonary hypertension. **Table III** lists other major and minor manifestations of ARF.

From the above, one can see that PA are a necessity in order to avert the unfavourable sequelae associated with the above conditions. The American Heart Association suggests that the standard regimen be prescribed to patients with positive histories.¹⁹ For the patient with a positive history of RF presenting for routine dental treatment, it would be advisable for the dental surgeon to arrange a 2-D echocardiogram to confirm the presence of organic heart disease secondary to RF. Patients already on antibiotic prophylaxis to prevent recurrence of ARF (secondary RF prophylaxis) must adhere to the special regimens of erythromycin or vancomycin for the prevention of SBE. The reason for this is that regimen A would be ineffective since penicillin resistant *S. Viridans* can pro-

duce endocarditis in patients who are receiving oral penicillin prophylaxis.

B. Congenital Heart Defects

In patients with congenital heart defects, the predisposing factor for the establishment of SBE or endarteritis by haematogenous spread is mainly the presence of a flow disturbance in the heart. The abnormal flow patterns are then established from a high pressure side to a low pressure side. Eventually, the abnormal currents erode the endocardium, causing exposure of underlying collagen.⁵ Since platelets have a high affinity for collagen, a platelet thrombus forms over the denuded area and *S. Viridans*, among other microbes, colonize the vegetation post bacteremia. No routine procedures should be performed for patients with symptomatic congenital heart disease without consulting the patient's physician. Patients with Down's syndrome should be suspected of having congenital heart abnormalities, as the incidence of this is about 33 per cent. Also, patients with Marfan's syndrome may have cardiovascular complications, such as an aortic aneurism; aortic regurgitation; valvular defects; and enlargement of the heart.²⁰ These patients should be covered.³

C. History of Cardiac Surgery

i) Surgical Closure of Septal Defect

Large atrial septal defects (ASDs) and ventricular septal defects (VSDs) may require closure with a patch of either pericardium or Dacron, and during the early healing stage, the patients with this correction are susceptible to SBE. Once the healing phase is complete, patients who had defects corrected with pericardial tissue would appear to be no longer susceptible. Patients with Dacron patches may remain susceptible even after healing has been completed. Recent experiments on dogs suggest that cardiac and arterial grafts made of Dacron may become completely covered with endocardium or intima, and therefore would not be susceptible to SBE or endarteritis, once this has occurred totally. But a significant number of these grafts never become completely covered, and there remain small defects, which are considered to be susceptible to SBE or endarteritis.²¹ The following should be carried out with regard to PA, in patients with surgically closed septal defects:

- consultation with cardiologist or physician
- PA before and after all dental procedures, up to six months post-surgery, preferably using regimen B

- iii) patients whose defects have been closed with pericardial tissue will not require PA six months after cardiac surgery
- iv) patients with Dacron patches should be protected with antibiotics, even after six months, using regimen A or B, depending on (i).

ii) *Ligated or Resectioned Ductus Arteriosus*

In selected patients, repair is accomplished by incising the ductus and suturing the cut ends closed, or by suturing the ductus closed without cutting. These patients remain prone to SB endarteritis for a brief time following surgery, but it is evident that by six months post surgery, they are no longer susceptible. On the basis of the above condition:²¹

- i) after consultation with physician, PA before and after all relevant dental procedures for patients less than six months after surgery with regimen B
- ii) no coverage for patients free of complications and greater than six months post-surgery.

iii) *Commissurotomy for Cardiac Valvular Disease*

This operation is done to improve the cardiac valvular function. All patients are therefore predisposed to SBE and must be given PA (regimen A), before and after all dental procedures.

iv) *Prosthetic Replacement of Diseased Cardiac Valves*

These patients have the highest risk with respect to mortality and morbidity, secondary to late prosthetic valve endocarditis, which is caused by transient bacteremias. The high mortality rate of 38 per cent underscores the fact that these patients must be protected with antibiotics before and after all dental procedures, using regimen B.

v) *Coronary Artery Bypass Operations*

This operation involves taking a section of saphenous vein and anastomosing it to the aorta and to the affected coronary vessel distal to the stenotic lesion. Except for the immediate postoperative period of 1-2 weeks, these patients do not appear to be susceptible to SB endarteritis.¹⁹ The data show that good healing occurs and suture lines are completely closed within a few days.⁵ Therefore, PA usage is not advocated.¹⁹

vi) *Vascular Grafts*

Prosthetic (alloplastic-Dacron) and autogenous grafts are used to replace segments of large arteries that have resulted

TABLE IV

The Use of PA for Certain Heart Murmurs⁵

A. Heart murmurs for which PA are needed

Heart murmur

- i) Rheumatic
- ii) Congenital
- iii) Atherosclerotic

Rationale for use of PA

- Accounts for 50% of SBE seen
- Significant percentage of SBE seen
- Calcified mitral and aortic valves may result in stenotic or incompetent valves that produce murmurs

B. Heart murmurs for which PA may or may not be needed (consultation with physician desirable)

Heart murmur

- i) Mitral valve prolapse syndrome
- ii) Transvenous pacemakers

Rationale for use of PA

- Patient has an incompetent mitral valve with a mid-systolic regurgitant murmur. The literature favours PA coverage for these patients.
- Electrode wire protrudes through the tricuspid valve preventing its complete closure which results in a low-grade regurgitant murmur in most patients.
- Trend in literature and in clinical practice for patients with a murmur caused by a pacemaker is not to use PA

C. Heart murmurs for which PA are not needed

- i) Functional murmurs
- ii) Atrial Septal Defect (ASD)
- iii) Repaired Ventricular Septal Defect (VSD)

- A low-grade systolic ejection murmur heard in the pulmonic area of the precordium as it is produced by the pulmonic valve
- Caused by: hyperdynamic flow states found in childhood + during severe anemia, anxiety, elevated temp + exercise
- No flow disturbances created therefore SBE does not result
- No flow disturbances/no platelet-fibrin thrombus

in pathoses leading to an aneurism or severe atherosclerotic disease. The incidence of infection of alloplastic grafts seems to be very low since the grafts are lined with endothelium in 2-4 months. However, if the graft does become infected, the organ or limb supplied by that particular vessel may not survive. There have been reports of hematogenous implantation of bacteria on the uncovered graft surfaces that may follow transient bacteremias occurring after surgical manipulation of the oral cavity or GU tract.²¹ In a patient with vascular graft(s), the following should be done with regard to PA:

- i) consultation with physician
- ii) PA for all dental procedures in patients with arterial grafts that have been in place less than six months (using regimen B)
- iii) no coverage for autogenous grafts that have been in place longer than six months
- iv) because small areas of incomplete pseudointimal lining may be present in older (non-Dacron) synthetic grafts, this would render the grafts susceptible to infection. Therefore, it is best to protect these patients with PA, using regimen A.

vii) *Implantation of Transvenous Pacemakers*

Bryan and colleagues²² have concluded that infections as a result of transient bacteremia involving the electrode catheter of transvenous pacemakers are rare, and they do not support the use of PA during procedures that are likely to cause bacteremia.

According to Little,²⁰ 5-6 per cent of patients having these procedures develop a problem with infections, with a mortality of 2 per cent. The A.H.A. has left it to the dentist to choose the use of PA to cover dental and surgical procedures.¹⁹ If warranted, then regimen A is suggested.

viii) *Heart Transplantation*

With these high risk patients, a consultation with the cardiologist is in order, with respect to emergency dentistry. Otherwise, absolutely no work should be done. Although SBE does not appear to be a problem once healing has occurred, infection is due to chemotherapeutic suppression of host defences. It is, for these reasons, that for all relevant dental procedures, PA are used but the dosage and selection should be done in association with the physician. Other medical precautions should also be considered.

D. Heart Murmurs

There are three main types of heart murmurs that predispose patients to SBE, for which PA must be given. These are documented in **Table IV** along with reasons and risks of generating SBE if PA are not used. Included are murmurs for which PA may or may not be used and those for which they are not needed.

Patients with Total Hip or Joint Prostheses

The greatest threat to these patients is infection around the prosthesis, which if unchecked, may result in the need for replacement of the unit involved or total loss of joint. When this occurs, the etiology of a late infection can remain dubious, although several potential sources can be implicated:

- i) latent infection resulting from original surgery, giving rise to a delayed growth of bacteria implanted at the time of surgery²³
- ii) by hematogenous spread or dissemination from established infections in remote areas (e.g., kidneys, lungs, GI tract and teeth) causing possible seeding of the prosthesis^{24,25}
- iii) invasive extension from infected tissues near hip.

Infections involving prosthetic joints have been documented to occur about two to three and even five years after replacement because of the hematogenous spread of bacteria similar to SBE. Rubin and his colleagues²³ presented three separate cases where late infections developed in patients with total hip replacement after endodontic, restorative and scaling treatments.²⁴ There was no real proof that the infection was due to dental work and hundreds of patients with THPs were treated with no problems. In two other cases of abscessed teeth, B hemolytic Strep. group G were the sources of the hip prosthesis.²⁶

Fitzgerald et al²⁵ showed that stage III infections of prostheses involve relatively virulent organisms, the source of which is an established infection elsewhere in the body. Thus, bacteria that are normally seen in post-extraction bacteremias, such as Viridans Strep., do not seem to cause TJR infections, but instead, much more pathogenic bacteria are seen. Another observation from the literature is that in some instances odontogenic infections have preceded joint infections.⁵ From the above information, it appears that extraction of asymptomatic non-infected teeth, which results in a transient bacteremia with microbes of low virulence, does not involve infection of a prosthetic joint. In this instance, no benefit to the use of PA

can be seen. However, an established odontogenic infection places the patient at risk of infection of the prosthetic joint. This infection should be treated aggressively, surgically and medically, with penicillin and streptomycin. Others suggest that because the morbidity of an infected THR or TJR is so devastating (long hospital stay of 95 days at a cost of \$11,300 to \$25,000), that the risks of PA for dental work seem small in comparison.^{24,27} The question of whether or not to use PA to date is still undecided, and several regimens are recommended, although not officially. When consulted, most orthopedic surgeons recommend PA for patients who are to have dental treatment that could cause bacteremia, but the schedules vary widely.²⁷ Some argue whether the use of PA actually decreases the incidence of infection in patients with this medical condition.¹

Patients with Severe Renal Disease

Patients reaching the end stage of either acute or chronic renal disease are very close to renal failure. Renal failure by definition is when serum creatinine and serum BUN cannot be maintained at less than 8 mg% and 80 mg%, respectively. This represents a total loss of approximately 85 per cent of normal glomerular filtration rate. Consequently, these patients require hemodialysis or renal transplantation for continued survival.

For patients on hemodialysis, the surgically created arteriovenous shunt is a foreign body that is potentially susceptible to infection resulting from a bacteremia. For this reason, nephrologists request PA for these patients.

Renal transplant patients are invariably on high dose chronic steroid therapy for the prevention of transplant rejection. In addition, they take cytotoxic drugs, which act synergistically with the former to produce immunosuppression. This combination of pharmacological agents predisposes the patient to infection, sepsis and poor wound healing.²⁸ It is recommended strongly that PA be utilized to minimize bacteremia and avoid post-operative infection at the treatment site. The A.H.A. schedules may suffice. However, with these patients, consultation with the physician is in order. In fact, for patients with renal insufficiency or in those who are anephric, careful selection of antimicrobial agents is a must, with the dose titration based on age of the patient and serum creatinine concentration.²⁹ One of the reasons for reducing these dosages is to minimize high blood levels which may result in adverse side effects,

such as: i) convulsions (penicillins), ii) bleeding diathesis (carbenicillin), and iii) renal toxicity (cephalothin).

Metabolic Derangements — Patients with Uncontrolled Diabetes Mellitus

The poorly controlled diabetic has a unique problem in that his/her granulocyte functions are significantly compromised. Specifically, granulocyte phagocytosis, adherence, locomotion, and chemotaxis, and microbial killing are all significantly diminished, especially in the presence of ketoacidosis.³⁰ Superimposed on this is the impaired granuloma formation and subnormal lymphocyte function. Moreover, the patient may have angiopathies, neuropathies and abnormal drainage. It has been hypothesized that granulocytes may have difficulty in crossing the thickened basement membrane in diabetics, thus compromising further the granulocytic mobilization.

An uncontrolled diabetic patient, in the presence of an infection, undergoes a vicious cycle in which case, the following occur: insulin requirement increases; insulin deficiency intensifies, causing reflex hyperglycemia; and granulocyte dysfunction worsens. As can be seen, once infected, the diabetic patient is less able to cope with the problem, and the chance of a more serious infection is greater. Significant is the fact that wound healing is delayed, predisposing the patient to oral infections after oral surgery.

Although the indications for PA remain clear, there is a controversy in that there have been no studies to date that have shown that the use of PA actually significantly decreases the incidence of infection occurring in uncontrolled diabetic patients after oral surgical procedures.³¹ Proponents for this argument advocate that PA should not be used. Others recommend that before rendering any treatment to these patients, severity of diabetes should be evaluated in detail. These clinicians recommend that PA be used in anticipation of contaminated wounds, and when the diabetic patient presents with positive urine acetone (as neutrophilic activity is decreased with ketoacidotic blood).³²

Patients with Cirrhosis of the Liver

Patients with this condition often harbour one or more predisposing factors favouring infection. The dysfunctions are most evident in the humoral immune system granulocytic leukocytes, and nonspecific serum bactericidal and organic activities which allow bacteria to bypass the

hepatic reticuloendothelial system.³⁰ Malnutrition and alcoholism may further compromise this patient by causing more leukocytic dysfunctions that are not necessarily directly related to cirrhosis of the liver. With these factors in mind, it would be prudent to consider the use of PA for this type of patient. One may also have to be cautious in choosing the correct antibiotic and dosage in proportion to the severity of liver pathosis.

The Immunosuppressed Patient

Immunosuppression is most evident in patients being treated for malignant neoplasms and in patients who have received transplanted organs. The cytotoxic chemotherapeutic agents, along with high dose steroid therapy, act by decreasing the non-specific immune system, by diminishing the response of PMNs and fibroblasts, along with phagocytosis. The net response is decreased wound healing.³⁰ If infected, the systemic signs and symptoms of infection may be absent or minimal in these patients, to the extent that the usual diagnostic approaches may not be helpful in identifying the problem at hand. The oral cavity is second only to the respiratory tract as the primary source of infection in granulocytopenic patients. Before any oral surgical procedures are contemplated, the severity of granulocytic patients should be evaluated, (i.e., if the granulocyte count is < 500/mm³). If the value is low, then granulocyte transfusions from an histocompatible donor should be used. Thrombocytopenia should also be assessed and corrected, if necessary, to achieve a platelet count above 50,000/mm³. The above is especially evident during cytotoxic cancer chemotherapy, where patients have additional depressed bone marrow activity, resulting in a low or poorly functioning WBC, such that even minor bacterial challenges may result in severe life-threatening infections in these individuals. Once the course of chemotherapy has been completed, a prolonged period is necessary for complete recovery of natural host defences. It is highly recommended that PA be used in such patients for any surgical procedures during one full year after cessation of chemotherapy.²⁸

Antibiotic regimens vary from author to author. The most common side effect seen in these patients after PA administration is the colonization of the mouth by *Candida albicans*. Therefore, in addition to the PA regimens above, many clinicians suggest preventing the establishment of infection with prophylactic nystatin mouth rinses.³⁰

Summary

The use of prophylactic antibiotics for various medical conditions has been discussed. For each condition mentioned, an attempt was made to explain the reasons why one would cover the patient presenting for oral and maxillofacial surgery. Wherever possible, current antibiotic regimens were presented, along with the rationale for their use. From the literature studied, it is clearly evident that more time, attention and research should be invested on this question alone, in order to more accurately define the situations where the use of the chemoprophylactic agents is most warranted.

It is beyond the scope of this article to discuss the various antibiotic regimens and dosages. This has been covered in detail elsewhere.³³ Δ

Dr. Kryshchalskyj was a senior resident, Department of Oral and Maxillofacial Surgery, Toronto General Hospital, Toronto, Ont. and is currently in private practice in Toronto.

Reprint requests to Dr. Kryshchalskyj, 23 Stockbridge Avenue, Toronto, Ont. M8Z 4M6.

References

1. Van Scoy, R.E. Prophylactic use of antimicrobial agents. *Mayo Clin Proc* 52:701-703, 1977.
2. Manual of Preoperative and Postoperative Care. American College of Surgeons, Philadelphia, W.B. Saunders Co., 1967.
3. Zallen, R.D. and Black, S.L. Antibiotic therapy in oral and maxillofacial surgery. *J Oral Surg* 34:349-351, 1976.
4. Craft, J. Prophylactic antibiotics in oral surgery: fact or fiction. *Oral Health* 68:66-70, 1978.
5. Topazian, R.G. and Goldberg, M.H. Management of infections of the oral and maxillofacial regions. Toronto, W.B. Saunders Co., 1981, pp. 157-170.
6. Zallen, R.D. and Strader, R.J. The use of prophylactic anti- in extraoral procedures for mandibular prognathism. *J Oral Surg* 29:178-179, 1971.
7. Chodak. Quoted from Topazian and Goldberg. Management of infections of the oral and maxillofacial regions. Toronto, W.B. Saunders Co. 1981.
8. Peterson, R.J. and Booth, D.F. Efficacy of antibiotic prophylaxis in intraoral orthognathic surgery. *J Oral Surg* 34:1008, 1976.
9. Paterson, J.A., Cardo, V.A. and Stratigos, G.T. An examination of antibiotic prophylaxis in oral and maxillofacial surgery. *J Oral Surg* 28:753-759, 1970.
10. Ruggles, J.E. and Hann, J.R. Antibiotic prophylaxis in intraoral orthognathic surgery. *JOMS* 42:797-801, 1984.
11. Conover, M.A., Kabel, L.B. and Mulliken, J.B. Antibiotic prophylaxis for major maxillofacial surgery. *JOMS* 43:865-870, 1985.
12. Eppley, B.L. and Delfino, J.J. Use of prophylactic antibiotics in temporomandibular joint surgery. *JOMS* 43:675-679, 1985.
13. Archer, W.H. Oral and maxillofacial surgery. Ed. 5. Toronto, W.B. Saunders Co., 1975.
14. Beumer, J., III. and Seto, B. Dental extractions in the irradiated patient. *Special Care in Dentistry* 1:4:166-173, 1981.

15. Hoffmeister, F.S., Macomber, W.B. and Wong, M.K. Radiation in dentistry: Surgical comments. *JADA* 78:511-516, 1969.
16. Moore, J.R. Principles of Oral Surgery, 2nd Ed. Manchester, Manchester University Press, 1976, p. 218.
17. Munroe, C.O. and Lazarus, J.L. Predisposing conditions of infective endocarditis. *J Can Dent Assoc* 1:10:483, 2:10, 490, 1976.
18. Symington, J.M. Streptococci isolated from post-extraction bacteraemias. *Br J Oral Surg* 13:91-94, 1975.
19. Prevention of Bacterial Endocarditis: A Committee Report of the American Heart Association. *JADA* 110:98-100, 1985.
20. Shafer, W.G., Hine, M.K. and Levy, B.M. A Textbook of Oral Pathology, Ed. 3. Toronto, W.B. Saunders Co., 1974, p. 630.
21. Little, J.W. Dental management of patients with surgically corrected cardiac and valvular disease. *OOO* 50:4:314-320, 1980.
22. Bryan, C.S. et al. Quoted from Little, J.W. (ref. 21).
23. D'Ambrosia, R.D. et al. Secondarily infected total joint replacements by hematogenous spread. *J Bone Joint Surg* 58-A:4:450-452, 1976.
24. Rubin, R., Salvati, E.A. and Lewis, R. Infected total hip replacement after dental procedures. *Oral Surg* 41:1:18-22, 1976.
25. Fitzgerald, R.H. et al. Deep wound sepsis following total hip arthroplasty. *J Bone Joint Surg* 59-A:7:847-855, 1977.
26. Wilson, P.D., Salvati, E.A. and Blumenfeld, E.L. The problem of infection in total prosthetic arthroplasty of the hip. *Surg Clin Am* 55:6:1431-1437, 1975.
27. Mulligan, R. Late infections in patients with prostheses for total replacement of joints: Implications for the dental practitioner. *JADA* 101:44-46, 1980.
28. Little, J.W. and Falace, D.A. Dental Management of the Medically Compromised Patient. Toronto, C.V. Mosby Co., 1980, pp. 114-116.
29. Van Scoy, R.E. and Wilson, W.R. Antimicrobial agents in patients with renal insufficiency. *Mayo Clin Proc* 52:704-706, 1977.
30. Quintilani, R. and Maderazo, E.G. Infections in the compromised patient. In: Topazian, R.G. and Goldberg, M.H. (eds.). Management of Infections of the Oral and Maxillofacial Regions. Toronto, W.B. Saunders Co., 1981, pp. 351-379.
31. Emery, G. Personal communication.
32. Ryan, D.E. *Dental Clin N Am* 26:116, 1982.
33. Shulman, S.T. et al. Prevention of bacterial endocarditis. *Circulation* 70:1123A-1127A, 1984.



**PORTABLE,
ULTRASONIC
ENDODONTICS
and SCALING**



Amadent's NEOSONIC

PORTABLE, CONVENIENT, EASY TO USE . . . quick-connects to your dental unit and foot pedal.

FASTER, SMOOTHER, CLEANER ROOT CANAL PREPARATION WITH REDUCED FATIGUE . . . can also aid in removal of broken instruments, old silver points, and filling materials.

CANAL PLUGGER WITH FRICTION HEAT . . . softens gutta-percha to aid condensation.

SCALER PROVIDES GENTLER, COOLER PROPHYLAXIS.

VIBRATOR EASES REMOVAL OF RESTORATIONS . . . crowns, inlays, posts.

PIEZO-ELECTRIC MAKES OTHER UNITS OBSOLETE . . . quiet, smooth, variable/full powered (30KHz) operation, automatic power adjustment and self tuning.

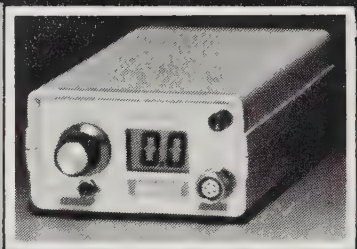
ECONOMICAL . . . Special introductory price (comparable units priced up to 50% higher) . . . 30 day trial . . . 18 month warranty.

For information or to order, see below . . .

Also available, ENAC ULTRASONIC ENDO/SCALER

DON'T BUY AN APEX LOCATOR!

Choose a
NEOSONO . . .
World's leading
apex locators.



(pictured: "D/PT" apex locator & pulp tester in one digital unit)

Priced from \$299 . . . Five models available to meet your practice needs and budget!

NEOSONO'S patented integrated circuitry (measuring frequency, not amplitude) provides the highest degree of sensitivity . . . ONLY CIRCUITRY PROVEN CLINICALLY ACCURATE, EVEN WITH PULP IN THE CANAL*

EASY TO USE . . . Just touch probe to your file in the canal for an instant digital** reading of its distance to the apex in 0.1 mm increments. Or, move into the canal with probe attached for continuous readout . . . Warning indicators help avoid over instrumentation and prevent false readings possible with other units.

INCREASE ACCURACY • SAVE TIME • REDUCE X-RAYS



*For clinical reprints or to order . . .

**CALL TOLL FREE 1 800-BUY NEOS, ext. K
or write :**

AMADENT, Box 733, Cherry Hill, N.J. 08003
Telex: 510 601 4391 AMADENT INC CH

Trade-in accepted on any apex locator

** analog models available

Also, See Iontophoresis Unit, Automatic Blood Pressure Unit And Painless Pulp tester At All National, Local & Canadian Meetings. See you in Edmonton. Booth no. 113.



UNIVERSITY OF TORONTO FACULTY OF DENTISTRY

Contractually Limited Term Appointment in Oral Diagnosis

Applications are invited for a two-year term assistant professorial appointment in Oral Diagnosis. Applicants must have had previous experience in teaching both oral radiology and oral diagnosis. Minimum qualifications are a DDS degree and a Master's.

Deadline for receipt of applications is July 31 for appointment September 1, 1988. The University of Toronto offers an equal opportunity for employment to qualified male and female candidates. All applications should be forwarded to Dr. C.O. Munroe, Faculty of Dentistry, 124 Edward Street, Toronto M5G 1G6.

Canadian immigration regulations require this advertisement to be directed to Canadian citizens and/or permanent residents.



Children's Hospital of Eastern Ontario
Hôpital pour enfants de l'est de l'Ontario

POSITION VACANT

The Children's Hospital of Eastern Ontario is seeking a specialist in Paediatric Dentistry to be Chief of the Division of Dentistry. The Hospital is a tertiary care children's hospital affiliated with the University of Ottawa. Presently, it is also engaged in post-graduate training of students from the University of Toronto, Faculty of Dentistry. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. Other candidates will be considered if no suitable Canadian candidate is found.

Send application to:

Dr. Hans Heick

Chairman of the Medical Advisory Committee
Children's Hospital of Eastern Ontario
401 Smyth Road
Ottawa, Ontario K1H 8L1

“Les clés du succès”

Le travail, le dévouement, la volonté et la compétence. Les clés du succès sont nombreuses. Comme vous, le CDSPI croit à ces qualités.

Au CDSPI, nous faisons tout pour vous aider à continuer de réussir dans votre profession.

Vos longues années de travail commencent à porter leurs fruits. Le CDSPI vous a protégé pendant toutes ces années.

Aujourd'hui, nous pouvons vous aider à protéger ce que vous avez bâti.

Le CDSPI est votre organisme de services, et vous offre un éventail de services ainsi que les compétences dont vous avez besoin pour maximiser les avantages que vous retirez de ces services. Pour de plus amples renseignements sur la manière dont nous pouvons vous être utiles, appelez-nous dès aujourd'hui.

INFORMATION COMPÉTENCE VOLONTÉ SERVICE



Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11 Québec et Ontario, **sauf** pour la région avec l'indicatif régional 807

497.71.17 Toronto et environs

Le texte ci-dessus a été approuvé par nos consultants/courtiers et nos assureurs.

Practice made perfect.



"There's a lot of headache and hassle being out there on your own. It's one thing to be a good dentist . . . it's something else to be an office manager, collections agent and personnel specialist.

Because I'm a dentist first and foremost, I chose Tridont."

— Dr. Bruce Fergusson Owner/Operator, Tridont Dental Centre, Scotia Square, Halifax.



Tridont Health Care Inc.

LEADERS IN CANADIAN HEALTH CARE

You can choose Tridont. Call Dr. Derek Turner,
National Franchising Director, Tridont Dental
Centres.

National 1-800-268-8217

Ontario 1-800-268-8589

Toronto 865-9211

. . . Or call Bruce at 902-423-8161

August/Août 1988

August: University of Alberta graduates wishing to have a class reunion during the **CDA Convention** please contact Sandra Kerluik at the U of A Alumni Office (403) 432-3224 if you require assistance in organizing your reunion mailing. For assistance in function space, please contact Florence Ingham at 432-3066.

August 5-6: International Congress of Laser in Dentistry at the Tokyo Prince Hotel in Japan, sponsored by the Japan Society for Laser Medicine. For further information, contact: Secretariat of I.C.L.D. 1988, c/o International Congress Service, Inc, Kasho Building 2F, 2-14-9 Nihombashi, Chuo-ku, Tokyo 103, Japan.

August 5-7: Singapore International Dental Exhibition and Conference Dentistry's Challenges, AD 2000 and Beyond. For more information, contact: SIDEC 88, Orchard Dental Centre Pte Ltd, 268 Orchard Rd, #05-07, Yen San Building, Singapore 0923.

August 7-11: American Association of Hospital Dentists at the Hershey Hotel in Philadelphia, Pennsylvania. For information, please contact: Dr. Manuel M. Album, 491 N York Rd, Jenkintown, PA 19046 U.S.A. (215) 887-3838.

August 7-11: Ninth Congress of the International Association of Dentistry for the Handicapped, Philadelphia, PA. Contact: Public Relations, (215) 576-2303, Abington Memorial Hospital, Abington, PA. 19001.

August 7-11: American Society for Geriatric Dentistry at the Hershey Hotel in Philadelphia, Pennsylvania. For information, contact: Dr. Manuel M. Album, 491 N York Rd, Jenkintown, PA 19046 U.S.A. (215) 887-3838.

August 8-10: 14th Annual Health Administration Forum at the Royal Ottawa Hospital in Ottawa. For more information, contact: Jehaangir Bulsara, Program in Health Administration, Room 255F, Vanier Hall, University of Ottawa, Ottawa, Ont. K1N 6N5 (613) 564-7017.

August 8-13: Preventive Dentistry and Epidemiology 1st International Conference sponsored by the Dental Health Center of Karlstad Sweden together with a Course on "Table clinics and demonstrations of preventive materials, programs and methods". For more information, contact: The Preventive Dental Health Center, c/o Hjärnbruket, Box 9055, S-650 09 KARLSTAD, Sweden. Tel: 46 054-13 20 10.

August 12-14: 4th Annual A.C.O.I. Symposium sponsored by the American College of Oral Implantology and the International Congress of Oral Implantologists in Denver, Colorado. For further detail, contact: Margaret M. Jackson, Executive Director, I.C.O.I., 248 Lorraine Ave., 3rd floor, Upper Montclair, N.J. 07043 U.S.A.

August 13-14: 4th Annual ACOI Symposium: Implant Prosthodontics at the Park Suite Hotel in Nashville, Tennessee sponsored by the American College of Oral Implantology and the International Congress of Oral Implantologists. For information, contact: Margaret Jackson at (201) 783-6300.

August 18-20: Annual Meeting of the Canadian Academy of Prosthodontics at the Four Seasons Hotel in Edmonton, Alberta. Contact: Dr. Carl Osadetz, 1045 Dentistry/Pharmacy Centre, University of Alberta, Edmonton, Alta T6G 2N8 (403) 432-3631.

August 18-21: 26th Annual Scientific Congress of the Iranian Dental Association and 6th International Dental Exhibition at the Homa Hotel in Tehran, Iran. For details, write: Dr. Faramarz Alaie, Iranian Dental Association, International Section, PO Box 14155-3695, IR-Tehran 14, Iran.

August 19-21: 40th Annual Scientific Meeting of the Canadian Association of Orthodontists at the Fantasyland Hotel in Edmonton Alberta. "Future Perspective in Orthodontics". For more information, please contact: Dr. Terry Carlyle, #1525 Weber Centre, 5555 Calgary Tr. S., Edmonton, Alberta T6H 5P9. (403) 435-3641.

August 21-24: Canadian Dental Association's Annual Convention, at the Edmonton Convention Centre, Edmonton, Alberta. Contact: Linda Teteruck, Canadian Dental Association, 1815 Alta Vista Dr., Ottawa K1G 3Y6. (613) 523-1770.

August 21-25: New Zealand Dental Association's Biennial Conference, Christchurch, New Zealand. Contact: Dr. E.A. Cope, Conference Secretary, 200 Cashel Street, Christchurch 1, New Zealand.

August 21-27: Annual Congress of the German Dental Association in Meran, Italy. For information: Dr. Schultz, Bundesverband der Deutschen Zahnärzte e.V. Bundeszahnärztekammer, Universitätsstrasse 71-73, Postfach 410168, 5000 Cologne 41, Germany.

August 23-28: Dental Group Management Association at the Hyatt Regency in Vancouver, BC. For more details, contact: Ms. Joann Junkins, #3 Lakewood Gardens Lane, Madison, WI 53704 U.S.A. (608) 241-2109.

August 28–September 2: XIII World Conference on Health Education in Houston, Texas. For more information, write to United States Host Committee, XIII World Conference on Health Education, P.O. Box 20186, W-902 Stallones Building, Houston, Texas 77225, U.S.A.

August 29–September 7: Public Oral Health Planning in Malmo Sweden. For more information contact; Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

September/Septembre 1988

September 1-4: 23rd Annual Odontostomatological Session at Hotel Alexander Beach in Alexandroupolis, Greece. For more information, contact: Dr. R. Koxapa-Damigos, Stomatological Society of Greece, Kallirroes 17, Athens 117 43 Greece.

September 4-10: 5th International Week for Dentistry in Istanbul, Turkey. For more details, write: Dr. Ozen Tuncer, University of Istanbul, Faculty of Dentistry, (Dishekimligi Fakultesi), TR-34390 Istanbul – Capa Turkey.

September 5-7: 11th International Conference on Oral Biology in Hong Kong. For more information, contact: International Association of Dental Research, 1111 14th Street NW, #1000, Washington, DC 20005 U.S.A.

September 7-9: Bristol 88 World Dental Conference University of Bristol, England, U.K. Decisions in Forward-Looking Oral Health Care. For information contact: Mr. B.P. Matthews, Bristol 88 World Dental Conference, University of Bristol, Senate House, Bristol BS8 1TH ENGLAND, U.K.

September 12-16: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo, Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

September 15-17: Clindent '88 Clinical Dental Conference in London, England. For details, contact: Clindent '88, 90 Harley St, W1N 1AF London, England.

September 15-18: American Academy of Gnathologic Orthopedics at Caesar's Palace in Las Vegas, Nevada. For more information, contact: Ms. JoAnna Carey, 211E Chicago Ave., Chicago, IL 60611 U.S.A. (312) 642-5834.

September 22-24: Silver Anniversary Celebration of the Canadian Academy of Restorative Dentistry in Edmonton, Alberta. Enquiries should be directed to: Dr. E.W. McIntyre, #68 Meadowlark Park, S.C., Edmonton, Alta T5R 5W9.

September 23-25: American Academy of Esthetic Dentistry at the Hyatt Regency Cambridge in Cambridge, Massachusetts. Contact: Ms. Cheryl Kraus, 211E Chicago Ave., Suite 948, Chicago, IL 60611 U.S.A. (312) 664-2122.

September 23-25: California Dental Association's Fall Scientific Session, San Francisco, California. Contact: Cissie Cooper, Director, Scientific Sessions, CDA, 818 "K" Street Mall, P.O. Box 13749, Sacramento, California, 95853-4749. (916) 443-0505.

September 29–October 1: New Orleans Dental Conference at the New Orleans Hilton, Poydras at the Mississippi River in New Orleans, Louisiana. For more information, contact: Ms. Normalee Ward, 3101 West Napoleon Ave., Suite 119, Metairie, LA 70001 U.S.A. (504) 834-6449.

September 29–October 2: Canadian Academy of Endodontics is holding its annual session at the Fantasyland Hotel, West Edmonton Mall in Alberta. All dentists are welcome. Contact: Dr. Tom Mather, #1107 – 10830 Jasper Ave, Edmonton, Alberta T5J 2B3.

September 29–October 3: American Association of Oral and Maxillofacial

Surgeons in Boston, Massachusetts. For information, write: 9700 West Bryn Mawr, Rosemont, Illinois 60018 U.S.A.

October/Octobre 1988

October 2-5: American Academy of Maxillofacial Prosthetics at Stouffers Harborplace Hotel in Baltimore, Maryland. For more details, contact: Dr. Gregory R. Parr, Medical College of Georgia, School of Dentistry, Augusta, GA 30912 U.S.A. (404) 721-2554.

October 4-7: American College of Prosthodontists at Stouffer's Hotel in Baltimore, Maryland. For more details, contact: Ms. Linda Wallenborn, 1777 NE Loop 410, Suite 904, San Antonio, TX 78217 U.S.A. (512) 829-7236.

October 4-7: American Academy of Dental Radiology at the Sheraton Hotel, Washington, D.C. For details, contact: Dr. William Wege, Medical College of Georgia, Augusta, GA 30912 U.S.A. (404) 828-2935.

October 5-7: 51st Annual Meeting of the American Association of Public Health Dentistry in Washington, DC. For information: Dr. R.G. Rozier, Dept. of Health Policy, CB 8140, Kron Building, University of North Carolina, Chapel Hill, NC 27599-8140, U.S.A.

October 6-8: Academy of Dentistry International at the Sheraton-Washington Hotel in Washington, D.C. For information, contact: Dr. Clifford F. Loader, 7804 Calle Espada, Bakersfield, CA 93309 U.S.A. (805) 832-3236.

October 6-9: American Association of Women Dentists at the Grand Hyatt-Washington Hotel in Washington, D.C. For information, contact: Ms. Cheryl Kraus, 211 E. Chicago Ave., Suite 948, Chicago, IL 60611 U.S.A. (312) 337-1563.

October 7: 2nd Annual Bernard Jankelson Memorial Lecture sponsored by the International College of Cranio-Mandibular Orthopedics at the Hyatt Regency, Washington, DC. Jerold J. Principato and J. Michael Dierkes are featured speakers. For details: ICCMO International Headquarters, 830 Marsh & McLennan Building, Seattle, WA 98101 U.S.A.

October 8-14: ADA/FDI Joint 1988 World Dental Congress Dentistry: Caring for the World at Washington, D.C. For more information, contact: Congress Secretariat, ADA/FDI Joint 1988 World Dental Congress, c/o American Dental Association, 211 East Chicago Ave., Chicago, Illinois 60611 USA or FDI Headquarters, Fédération dentaire internationale, 64 Wimpole St., London W1M 8AL, United Kingdom.

October 9-14: International Workshop on Cranio-facial Trauma sponsored by the Australian Cranio-Maxillo-Facial Foundation. For information, contact: Mrs. D. Moody, Executive Officer, 226 Melbourne St., North Adelaide, S.A. 5006, Australia.

October 10-15: American Academy of Implant Dentistry at the J.W. Merriot Hotel in Washington, D.C. For registration information, contact: Mr. John P. Winiewicz, P.O. Box 2002, Abington, MA 02351 U.S.A. (617) 878-7990.

October 12-16: American Society of Dentistry for Children at the Sheraton Bal Harbour, Bal Harbour, Florida. For information: Ms. Lana Wos, 211 E Chicago Ave, Suite 920, Chicago, IL 60611 U.S.A. (312) 943-1244.

October 17-21: Clinical and Radiological Diagnosis of the Temporomandibular Joint in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

October 19-21: Health Education in Action sponsored by Saskatchewan Institute of Applied Science and Technology at the Sheraton, Regina, Saskatchewan. For more information, write or phone: (306) 787-0113, Elaine McNeil, Box 566, Regina, Sask. S4P 3A3.

October 19-21: Annual Conference of the Canadian Society of Forensic Science at the Westbury Hotel in Toronto. Theme: Advances in Technology: The Impact on Forensic Science. For further information, please contact: Canadian Society of Forensic Science, 2660 Southvale Cres, Suite 215, Ottawa, Ont. K1B 4W5 (613) 731-2096.

October 25-27: Medical/Hospitech 88 — 2nd International Medical, Hospital and Dental Equipment and Facilities Exhibition in Bangkok, Thailand. For

more information, contact: SHK International Services Ltd., 22/F., 151 Gloucester Rd., Hong Kong. Telephone: 5-8326100.

October 26-29: American Academy of Periodontology at the Sheraton Harbor Island Hotel in San Diego, California. Contact: Ms. Jean Pierson, 211 E Chicago Ave, Suite 924, Chicago, IL 60611 U.S.A. (312) 787-5518.

October 26-29: 42nd Annual Meeting of American Academy for Cerebral Palsy and Developmental Medicine Deadline for free papers: February 12, 1988. Royal York Hotel, Toronto. INFO: AACPDM, P.O. Box 11086, Richmond, Virginia 23230 USA.

October 27-31: 23rd Indian Orthodontic Conference followed by Post Conference Workshop at the Manali Hill Resort. For details and registration forms, contact: Dr. Pradip Jayna, Organising Secretary, 23rd I.O.C., M-75, Connaught Place, New Delhi - 110001, India. Phone: 332-9516 or 9517.

October 28-29: Clinical Applications of Osseointegrated Implants sponsored by The Ontario Dental Association in conjunction with the Ontario Society of Oral & Maxillofacial Surgeons at the Sheraton Centre Hotel, Toronto. To register, contact: Professional Development, The Ontario Dental Association, 234 St. George St, Toronto, Ont. M5R 2P1 (416) 922-3900.

October 28–November 1: American Institute of Oral Biology in Palm Springs, California. For details: Dr. Philip J. Boyne, Dept. of Surgery, Loma Linda University Medical Center, Loma Linda, CA 92350 U.S.A. (714) 824-4671.

November/Novembre 1988

November 10-13: Joint Meeting of the Canadian and American Pain Societies in Toronto at the Hilton-Harbour Castle Hotel. For information, contact: Canadian Pain Society, 3655 Drummond St, Room 1202, Montréal, Québec H3G 1Y6.

November 13-16: The Saul Kamen Seminar in the Management and Treatment of the Developmentally Disabled Dental Patient sponsored by the Dept of Dentistry, Long Island Jewish Medical Center and the Health Sciences

Center State University of New York at Stony Brook. For further information, please contact: Ann J. Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York 11042 U.S.A. (718) 470-8650.

November 18: Sicher Memorial Lecture sponsored by the Alpha Omega Dental Fraternity at the Westin Bayshore Hotel in Vancouver, BC. "New Horizons in Dentistry" with David Garber. For registration contact: Dr. W.C. (Fred) Weinstein, #515-750 W Broadway, Vancouver, BC V5Z 1H4.

November 20-23: 39th Annual Educational & Scientific Meeting of the Ontario Public Health Association "Equity in Health". For information, contact: Conference Pre-registration, Ontario Public Health Association, 102 Adelaide St E., 2nd floor, Toronto, Ont. M5C 1K9.

Novembre 21-24: Congrès international de l'Association dentaire française et le Festival international du Film et de la Vidéo dentaires à Paris. Renseignements: A.D.F., 92, av. de Wagram, 75017 Paris, France.

November 23-25: Swedish Dental Society in Stockholm Sweden. For information, write: Ms A.C. Nackstad, Nybrogatan 53, S-114 40 Stockholm, Sweden.

November 24: 51st Annual Winter Clinic Toronto Academy of Dentistry at the Metropolitan Toronto Convention Centre, 255 Front Street W, Toronto, Ont. For information, contact the Academy of Dentistry at (416) 967-5649.

November 28–December 2: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

December/Décembre 1988

December: 43rd Indian Dental Association Conference in Pune India. For more information, contact: The Indian Dental Association, 20-A D.B. Road, R.S. Puram, Coimbatore 641 002 India.

Simplify Glass Ionomer and Composite Core Build-Ups

PREMIER ACCOR® Matrices are easy to use with Glass Ionomer and Composite and are a great time-saver. Each form is multi-sized to accommodate virtually every shaped tooth.

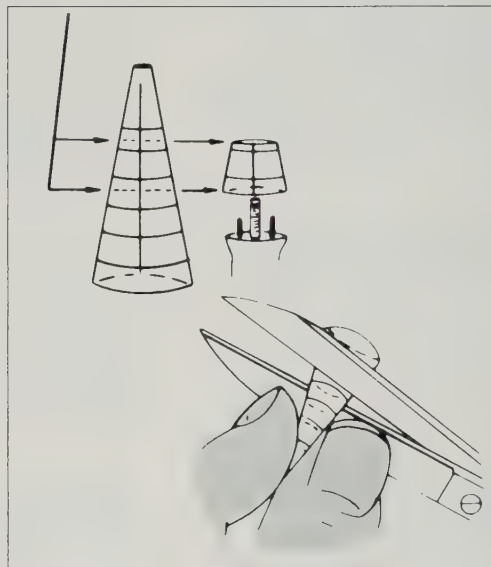
Once trimmed, loaded and seated onto the tooth, ACCOR provides a close to prepared tooth form. The ideal taper is then easily achieved when placing the finish line on tooth structure.

#48081 - 50 Matrices Sug. Retail \$33.00

Order through your dealer



Premier Dental Canada, Inc.
3781 Victoria Park Avenue, Unit 12
Scarborough, Ont. M1W 3K5



ACCOR is a registered trademark of Accor, Inc.

Neuromuscular Occlusion Seminars

**Objective, electronic diagnosis
& documentation**

The only complete continuing education program in:

- State of the art TMJ/MSD electronic diagnosis
- Role of the muscles in **all** major dental procedures
- Methods of objective diagnosis & case documentation
- Individualized, precision orthotic (splint) design
- Physiologic function of masticatory muscles

Introductory Seminars

Atlanta, GA	July 8-9	San Antonio, TX	Oct. 21-22
Seattle, WA	July 15-16	Seattle, WA	Oct. 28-29
Arlington, VA	July 29-30	Atlanta, GA	Nov. 4-5
Chicago, IL	August 5-6	Chicago, IL	Nov. 18-19
San Diego, CA	Sept. 16-17	Seattle, WA	Dec. 2-3
Seattle, WA	Sept. 23-24	Columbus, OH	Dec. 9-10

Call for schedule of advanced & specialty courses

AGD, CDA accreditation and course certificates for all programs.

For details, call **1-800-426-0316**.



MYO-TRONICS, INC.

720 Olive Way, Suite 800, Seattle, WA 98101
(WA, AK & Canada call 206-622-2121)



UNIVERSITY OF TORONTO FACULTY OF DENTISTRY Department of Paediatric Dentistry

Applications are being accepted for a full-time tenure-track position in the Department of Paediatric Dentistry at either the Assistant or Associate Professor level. Candidates must have completed a postgraduate program in Paediatric Dentistry and preferably will have a graduate degree.

Responsibilities include teaching at the undergraduate and postgraduate levels as well as participating in active research. For an individual committed to an academic career, the position offers exciting opportunities in both academic and outreach programs.

Available September 1, 1988, or as soon as possible thereafter. Salary and academic rank are commensurate with qualifications and experience.

The University of Toronto offers an equal opportunity for employment to qualified male and female candidates. Interested persons are requested to forward a current curriculum vitae which includes the names and addresses of three references to: Dr. N. Levine, Head, Department of Paediatric Dentistry, Faculty of Dentistry, 124 Edward Street, Toronto, Ontario M5G 1G6. Deadline for application is June 30, 1988. Canadian immigration regulations require this advertisement to be directed to Canadian citizens and/or permanent residents.

Obituaries/Nécrologie

Dr. E.P. Downton passes in Toronto

Edward P. Downton, DDS, BScD, FACD, FRCD(C), who devoted his entire professional career to dental education, has passed away in Toronto.

Dr. Downton received his DDS (1944) and his BScD (1953) from the University of Toronto, and saw service with the Canadian Dental Corps (Navy) from 1944 to 1947.

He joined the Faculty of Dentistry, University of Toronto in 1947 as an Associate Professor, and became a full time faculty member, as an Assistant Professor, in 1948. He achieved full professorship in 1965.

Dr. Downton was Acting Head of the Department of Prosthodontics in 1962-63 and 1968-69.

He enjoyed a distinguished career in hospital dentistry as a dental surgeon at the Grenfell Labrador Hospital, 1946-47 and at Toronto General Hospital, from 1955 to 1960. He also served, from 1954 to 1965, as an examiner with the Royal College of Dental Surgeons of Ontario and was Prosthodontic editor with the Journal of the Ontario Dental Association, from 1948 to 1953.

Dr. Downton was Secretary of the Canadian Academy of Prosthodontics in 1962-63.

Active in Canadian Dental Association endeavors, he was Chairman of CDA's Auxiliary Dental Service Committee in 1965-66. He was presented with CDA's Certificate of Merit in 1978.

During his academic career, he also conducted a private consultation practice in Toronto, from 1957 to 1978.

He received honors from the University of Toronto and was named Professor Emeritus.

The editorial staff of JCDA regrets errors in the original obituary notice about Dr. Downton's passing, published in the April, 1988 edition of this Journal — JCDA Vol. 54:4: p 229.

Allard, Diane: Diplômée de l'Université de Montréal en 1978, le Dr Allard exerçait à Outremont (Québec).

Boiteau, Guy: Diplômé de l'Université de Montréal en 1974, le Dr Boiteau était professeur adjoint à la Faculté de médecine dentaire de l'Université Laval, à Ste-Foy (Québec).

Chalmers, John L.: Born in 1901, Dr. Chalmers graduated from the University of Toronto in 1925. He served for a time with the Canadian Dental Corps during the Second World War. Following this, Dr. Chalmers practised in North

Toronto until his retirement in 1964. He was a Life Member of the CDA.

Clark, Hilliard E.: Born in Prince Edward Island in 1904, Dr. Clark was a graduate of Dalhousie University, Halifax, and established a practice in Summerside, P.E.I. During the Second World War (1941-45) he served with the Canadian Dental Corps. He returned to his practice in Summerside, until his retirement in 1970. He was president of the P.E.I. Dental Association and much involved in community organizations, particularly sports groups. He also served as a municipal councillor.

Cooke, T.J.S.: Dr. Cooke was a graduate of the University of Toronto in 1934 and a native of Wolseley, Saskatchewan. He practised in Regina and Winnipeg, and was a member of the Royal Canadian Dental Corps in the Second World War. He was a past president of the Manitoba Dental Association and served with the National Dental Examining Board. He was a Life Member of the CDA.

Eckenfelder, Charles: Born in 1954, Dr. Eckenfelder received his dental degree from McGill University in 1981. He was the victim of a mountain-climbing accident in Nepal. Dr. Eckenfelder practised in Gatineau, near Hull, Québec.

L'Espérance, J.-C.: Né en 1906 et diplômé de l'Université de Montréal en 1931, le Dr L'Espérance exerçait à Montréal.

Ignacz, Michael M.: A native of Budapest, Hungary, Dr. Ignacz was a graduate of the University of British Columbia in 1974. He conducted a practice in North Vancouver, B.C.

Jeffries, Drew P.: Dr. Jeffries graduated with his dental degree from the University of Toronto in 1926. He practised in the Toronto area and then moved to Calgary. He was a Life Member of the CDA.

Mendel, Frank: A graduate of the Faculty of Dentistry, McGill University, Dr. Mendel conducted a long-time practice in the City of Montréal.

Michail, Osama: Born in 1943, Dr. Michail was a graduate of the University of Cairo, Egypt, in 1977. He practised in Willowdale, Ontario.

Pearson, H.H.: Born in 1894, Dr. Pearson was a graduate of McGill University in 1917. He conducted a private practice for many years in Montréal. He was a Life Member of the CDA.

Pottinger, E.N.M.: Born in 1922, Dr. Pottinger was a graduate in dentistry from the University of Toronto in 1950. He lived and practised in Queen Charlotte City, British Columbia.

Starr, R.M.: Born in 1934, Dr. Starr was graduated from the University of Toronto in 1959. He maintained a general practice in Scarborough, Ontario, and latterly, was practising within the Ontario Ministry of Health's Underserved Dental Area Program.

Introducing

Wipe Out™

Safe & Problem Free

the answer to Your Infection Control Concerns



Wipe Out™ Cold Sterilizing Disinfecting Solution

- **safety & high efficacy** - contains only 0.3% Glutaraldehyde as a sterilant. Does not yellow the skin or require the use of gloves, masks or glasses.
- **assurance** - anti-viral, anti-fungal anti-bacterial and sporicidal. Completely disinfects, including *M. Bovis* and *M. Smegmatis*, within 15 minutes.
- **convenience** - mix only once. Wipe Out™ is effective for 45 days.
- **cost efficient** - for High Level Disinfection Wipe Out™ may be diluted 1:1



Wipe Out™ High Level Disinfectant Towelettes

- **safety & high efficacy** - contains only 0.15% Glutaraldehyde as a High Level Disinfectant. Safe for hands, non staining.
- **assurance** - anti-viral, anti-fungal and anti-bacterial. Can be used on any hard surface or instrument for complete disinfection.
- **convenience** - premoistened and non-staining.
- **cost efficient** - single use..... no wastage. Handles all the small disinfectant tasks.

Health Care Products Inc.

260 Brunel Road
Mississauga, Ontario, Canada
L4Z 1T5
Ph: (416) 890-7100
Fax: (416) 890-0886

Sherman Oaks
California, U.S.A.
91403

See us at Booth 149.

Offices and Practices

YUKON—Whitehorse: Dental practice for sale. Affordable. Details on request. Contact: Dr. F. Almstrom (403) 667-4486 Office or (403) 667-6564 Home.

BRITISH COLUMBIA—Interior: High gross practice with strong orthodontic components. Located in professional building with reasonable rent. Situated in a scenic recreational area of Nelson, B.C. City's largest employer is the provincial and federal civil service. Must sell. Contact: Mas (604) 352-3223 or 354-4809 or Judi 352-3581.

BRITISH COLUMBIA—Delta: Assure your future now. General family practice established twenty years in the most desirable and prime area of the Lower Mainland. Fantastic weather and beautiful area. Very high gross on only 4 days, 6½ hours a day. Unlimited possibilities to increase the high gross to expand patient flow and all aspects of dental treatment. Unlimited success is up to you. Reply to CDA Box 2414.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—Sooke (near Victoria): General family practice established 13 yrs. Providing all facets of dentistry. Well located in growing community. Large patient base will assure continued good income and steady growth from active recalls and new patients. Terms negotiable. Dr. John

Bidgood. Business (604) 652-2521 or (604) 642-3535 or Home (604) 652-4114.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

BRITISH COLUMBIA—Vancouver: Must sell. Established solo practice. Good patient base and new flow. Modern, bright surroundings including large skylights, central air conditioning. Very low overhead with high net. Very central location (only 5 minutes to downtown Vancouver) Call Dr. Jonathan Newman at (604) 876-5032 or (604) 734-7519 (leave message).

BRITISH COLUMBIA—Vancouver: Established practice for sale. Two operatories fully-equipped. 600 sq. ft. Low overhead. Excellent staff. Central location. Priced for quick sale. For more information call (604) 521-1454 evenings.

BRITISH COLUMBIA—Victoria: Centrally located, busy, low overhead, 17 year-old, general practice for sale. Two modern, fully-equipped operatories. Located with easy access on quiet courtyard in established neighborhood. Dr. Bill Bassett (604) 384-2043 (bus) or 592-7593 (res).

BRITISH COLUMBIA—West Vancouver: Established general dental practice near prime waterfront with three operatories, x-ray, panelipse and laboratory. Part-

time hygienist plus congenial staff to assist in transfer of patients. Active recall provides steady income after purchase. Owner wishes to retire. Reply to CDA Box 2419.

ALBERTA: Priced to sell. Small town practice in very friendly community in Central Alberta. Two fully-equipped operatories. Very high net income due to no overhead expenses. Excellent for recent graduate, call (403) 578-3907 evenings.

ALBERTA—Edmonton: A well-established, uptown group practice is seeking a dentist with an established practice. The intent is to increase critical mass; thereby, reducing fixed overhead costs and increasing time off, while maintaining approximately the same net income. Please reply in confidence to CDA Box 2423.

ALBERTA—Edmonton: Practice for Sale. Excellent for recent graduate. Newly decorated. Two fully-equipped operatories each with x-ray. Panorex in office, two hygienists. Cost sharing with one other dentist. Phone (403) 455-8141 or (403) 433-9166 evenings.

ALBERTA—Edmonton: General dental practice of 15 years, located in trendy area near university. Three fully-equipped operatories with x-ray. Active patients provide steady income after purchase. Market evaluation available. Owner relocating. Phone Brian (broker) at (403) 295-1840.

SASKATCHEWAN: Very busy, family-oriented practice for sale in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

ONTARIO—Amherstburg: Very busy, general practice established 14 years. Excellent gross. Less than 50 per cent overhead, 95 per cent insurance, 3 hygienists, Panorex lab. tech., excellent location. All staff with practice for many years. Cost-sharing facilities with 2 other dentists. In Canada's "Sun Parlor" on Detroit River/Lake Erie. Excellent golf, boating, fishing, recreational facilities, Windsor 25 minutes, Detroit 30 minutes. House on lake also available. Great opportunity! For details, Dr. Peter Neilson, 1359 Front Rd S, Amherstburg, Ontario. N9V 2M5; (519) 736-4672 after 6:00.

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

ONTARIO—Sudbury District: Seven-year-old family practice for sale. One operatory, low overhead, high gross. Good as satellite. Incentive grant available. Phone (705) 437-3821.

SOUTHWEST ONTARIO: Busy, established, family practice for sale in small town. Modern 30' x 50' building, air-conditioned, two well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operatory). Excellent income, low overhead. Please call (519) 482-5864.

NOVA SCOTIA—Halifax: Established downtown general practice for sale, located in Purdy's Wharf. Sale includes share of modern equipment, sundries, and term lease of office space. Practice includes a large recall clientele (mostly adult). Suitable for an experienced operator or two graduates. Apply to Box CDA 2327 or in confidence to Dr. Stewart Keddy, 43 Westridge Dr., Halifax B3M 3K3.

NEW ZEALAND: For Sale. Modern spacious well-equipped solo practice in holiday area. Plenty fishing, sailing, golfing etc. . . no snow, very temperate climate. Dr. Yorke, Medical Centre, Thames, New Zealand.

Associateships Available

NORTHWEST TERRITORIES: Our well-established, modern clinic in Yellowknife is seeking an ambitious, quality care associate. Excellent opportunity for remuneration and travel within Canada's Last Frontier! Yellowknife, the modern NWT capital city of 13,000 people offers most amenities and excellent year round recreational activities. Please reply to: P.O. Box 1178, Yellowknife NWT X1A 2N6.

NORTHWEST TERRITORIES: Well-established, general family practice requires a capable, conscientious and ambitious associate. Many new patients, plus existing files to pass on to new associate. Opportunities for Arctic dental travel are also available. Send reply to CDA Box 2415.

BRITISH COLUMBIA: SECOND ASSOCIATE REQUIRED. Well-established practice in Williams Lake, BC has new full-time opening for second associate to start Summer '88. Present lady associate of 5 years wishes to cut back to 8 days per month. This is a good opportunity to earn a high income based on an established patient flow. Phone (604) 392-2615 (collect) evenings or (604) 398-8633 (collect) days. Ask for Alistair Menzies.

BRITISH COLUMBIA—Prince George: Busy family-oriented dentist requires associate leading to purchase of a high-gross preventive practice. Must be concerned with patient care and management. Good staff and working conditions, 3 full operatories with pan. Excellent outdoor activities. Hunting, fishing, skiing in B.C.'s 2nd largest city. Phone (604) 564-2020 or 699-6911.

ALBERTA: Pedodontist to associate with opportunity to purchase well-established twenty-five year old practice. Three operatories, pan, rent — \$14.95/sq. ft. x 1193 sq. ft. Reasonable terms to be negotiated to suit purchaser. Call collect (bus) (403) 262-7000.

ONTARIO—Toronto: Oral and Maxillofacial Surgeon wanted to associate with view to a partnership in group practice. Reply in confidence to CDA Box 2417.

ONTARIO—Scarborough: Associate required part-time — days negotiable. With buy-in potential for appropriate candidate in this friendly, modern practice with motivated support staff. Please contact Dr. R.A. Worling at (406) 261-9791 or write 2488A Kingston Rd, Scarborough, Ont M1N 1V3.

SOUTHWESTERN ONTARIO: Oral and Maxillofacial Surgeon. Associate wanted for busy practice in Southwestern Ontario. Position available immediately. Opportunity for full partnership after one year. Call (519) 623-1760.

Opportunities Available

BRITISH COLUMBIA—Kootenays: High daily minimum gross in busy solo family practice established 23 years. Excellent staff and recall system, providing all phases of dentistry. Large patient base and steady growth of new patients assures continued success. This city is growing with steady employment and 94 percent dental insurance. I will associate for an introductory period. Purchase for 50 percent of annual gross includes all equipment, supplies, etc. Suitable for experienced dentist or two graduates. (604) 442-5837.

BRITISH COLUMBIA—Prince George: We are inviting enthusiastic, quality-conscious dentists (experienced dentists preferred, new graduate considered) to consider a unique opportunity in a non-traditional environment. We are a large progressive dental group located in Prince George, B.C.'s 2nd largest city. Our schedule is designed to attract local and out of province candidates. We welcome your telephone (collect) inquiries to: Lakewood Dental Group, c/o Elaine David, Mon-Fri (daytime) (604) 562-5551, Evenings or weekends (604) 562-1927.

BRITISH COLUMBIA—Nanaimo, Vancouver Island: Associate-Partner. Excellent opportunity in busy and growing practice in a mall setting. High standard of living with wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply to Dr. Patricia Crosson. Phone (604) 754-1949 days and (604) 468-9892 evenings.

ALBERTA—Edmonton: A well-established, downtown group practice has a locum available for September, October and November 1988. Please reply in confidence to CDA Box 2422.

ALBERTA—Red Deer: Port-O-Call Dental Group requires an associate/partner. One in group wishes to retire. Opportunity to buy into the group within one year. For further information, phone (403) 343-8831 (days) or 347-3966 (evenings).

ONTARIO—Toronto: Periodontist required part-time to join with a growing Toronto group general practice. Recently renovated. Stressing prevention, good quality and caring. Congenial and competent staff. Reply to CDA Box 2412.

ONTARIO—Toronto: Oral and Maxillo-facial Surgery group requires a part-time associate for office work only. Reply in confidence to CDA Box 2418.

Opportunities Wanted

BRITISH COLUMBIA: Practice wanted. Greater Vancouver preferred but very busy rural practice will be considered. Must be progressive, well-established, owned and operated by the seller and have significant potential for future growth. Owner must stay on during transition and practice must be realistically priced. Reply CDA Box 2410.

Equipment

MANITOBA: For sale Moritz panex x-ray unit, 3 years old. Reply to Dr. Rudisaile, Box 21, Grp 336, R.R. #3, Selkirk, Manitoba R1A 2A8 or phone (204) 757-2512.

Advertisers' Index

Amadent	536
Ash Temple Limited	507
Belmont Takara Company Canada Ltd.	522
Block Drug Co. (Canada) Ltd.	498
CDSPI	520, 537
C U & C Health Services Society ..	514
The L.D. Caulk Company of Canada ..	IBC
The Children's Hospital of Eastern Ontario	536
Core-Vent Corporation	521
Corporation of the Village of South River	495
Cresdon Systems Inc.	526
Den-Mat Corporation	OBC
First City Trust	526
Healthcare Products Inc.	544
F.W. Horner Inc.	508, 509
Interplak	528
Kerr Canada	527
Myotronics, Inc.	542
Plax	518, 519
Premier Dental (Canada) Inc.	542
Procter & Gamble, Inc.	IFC
TD Bank	510
Tridont Health Care Inc.	538
University of Toronto	536, 542

LIBRARY SERVICES

Commencing September 1, 1988, the following charges will be levied for services available from the Sydney Wood Bradley Memorial Library.

Service	Member	Non-member
MEDLINE Searches	Free	\$10.00 flat fee plus the search cost
All Photocopies*	\$5.00 for the first 10 articles; 10 cents a page thereafter	\$5.00 flat fee plus 10 cents per page
Monthly SDI	Free	\$30.00 per year
Package Library	\$5.00	\$10.00
Table of Contents	Free	\$5.00
General Inquiries	Free	Free

*Requests for articles from other libraries do involve extensive costs so these will be passed on to the user as they occur.

Over the years, the Sydney Wood Bradley Memorial Library of the Canadian Dental Association has provided a variety of library services at no cost to CDA members. However, the demand for these services has escalated and so too have the costs. Consequently, in order to maintain both the quality and variety of services to which CDA members are accustomed a small service charge must be levied.

We feel that the above schedule is both reasonable and competitive with those of other libraries and resource centres. In addition, charges have been structured to the advantage of the CDA member.

The Sydney Wood Bradley Memorial Library is appreciative of the support it has received from the dental profession over the years and looks forward to continuing this tradition of service in the future.

Should you require additional information on these changes, please don't hesitate to contact the library at: 613-523-1770 extension 223.

professional (-sho-), a. & n. 1. Of, belonging to,
connected with, a profession . . .

CDA. Professional Dentistry.

Do You Belong?



For information call: 613-523-1770 or write
CDA/L'ADC
1815 Alta Vista Dr.
Ottawa Ont. K1G 3Y6



**DON'T
LEAVE
YOUR
PATIENTS
IN THE
DARK**

CANADIAN DENTAL ASSOCIATION

Light up the right issues, concerns and information in your office with patient education materials from the Canadian Dental Association.

The CDA's new 8 page catalogue, with an easy-to-use order form provides one convenient source for its brochures, fact sheets, posters, buttons, stickers and more.

*Write or phone today for your **free** catalogue!*

Order Section
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6 (613) 523-1770

Doctor . . . A Moment of Your Time

Reach every dentist and dental student in Canada

Over 14,000 dentists and 1,600 dental students read the Journal of the Canadian Dental Association every month. The Journal has a section exclusively for you — the Marketplace. Whether you are buying a practice, selling a practice, or looking for an associate, we are here to give you the best exposure possible.

Dentists who do not get the response they anticipated after running their paid advertisement twice will receive one placement of their ad at no charge.

CLASSIFIED ADVERTISEMENTS

The classified advertising department of the Journal of the Canadian Dental Association is published as a service to the dental profession. Rates are minimal. Therefore, even on display classified advertisements, no agency commission is payable.

CLASSIFIED ADVERTISING RATES

50 words or less, per ad (minimum) \$30.00 plus 50¢ for each additional word. Box number \$5 per insertion. All ads must be prepaid. (Cheque or money order). NO AGENCY COMMISSION PAYABLE. Closing date is first day of month preceding month of issue. No cancellation or copy changes after closing date. Ads not accepted over telephone. The Journal reserves the right to reject or edit advertisements that do not conform to Journal requirements.

DISPLAY CLASSIFIED RATES

Half page and quarter page ads only. Commercial advertisers do not qualify. One time rate only: half page vertical or horizontal \$500.00, quarter page \$315.00. Payable in Canadian funds.

Replies to CDA box numbers should indicate box number on envelope. Names and addresses of box number advertisers will not be revealed.

The Journal of the Canadian Dental Association neither investigates the offers made in these advertisements nor assumes any responsibility for them.

Write: Journal, Classified Advertising Dept.
Attention: Jennifer McClinton
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID

AMOUNT OF CHEQUE ENCLOSED: _____

So you think this is funny, eh?

by Jean Cives



sought to rescue the driver who was nowhere to be seen. Later she turned up on foot in duffel coat and attractive nightie, to admit that she just may have forgotten to put the brake on. The only missing element in this farce was the time of year — Springtime. It should have been in a snow storm to get the full Canadian content.

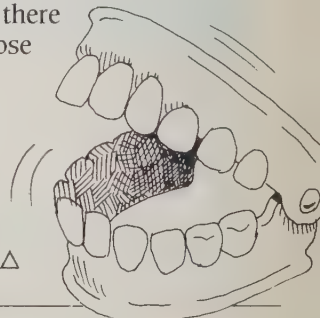
Another humorist set my house alight one evening as we were drinking coffee with an assortment of painters, carpenters and suchlike friends who were determining how to redecorate a room eight by ten feet so it would look like a banquet hall. Why it is that all my tradesmen are unreformed coffee-olics and susceptible to a little dram over the plans and estimates? One such tore a wall off the kitchen one time, and retired to Florida for his annual three weeks, leaving me with a sheet of plastic or two between Home Sweet Home and Stormy Weather at minus Celsius. Yet another humorist built a frog pond in the back garden of our house, a pond that was to stand a thousand years. Holding it together was Grannie's old iron bed and wire spring. The contractor who had agreed to remove it for \$70 confessed at the end of three days' labour that he had only agreed to remove it because he thought I was joking.

Now the plot is that I thought that all of Canada's humor was actually resident in these who claim to renovate houses, repair the roof, and fix your car. One Government licensed-motor mechanic-on-duty-24 hours gave me back my car one time and I could not get the engine started! He looked at me with disbelief and awe at my arrogance, when I suggested that I had driven the car in for repair, and thought that at least I should be able to

drive it out again even to Johnny's down the road to re-attempt this repair! He volunteered to bill me for his repair *and* a tow truck!

This all occurred to me this morning when I decided to find the extension phone that I think I have been paying for the last three . . . four years. We have had a couple of minor building repairs, about forty-two different receptionists and assistants, at least twenty telephone chappies and such like. You see one of our former local Hero-Dentists has had despairing disappearing associates for ten years or so. For some reason beyond my comprehension, each associate wanted the phone moved. (Is it something they teach in dental schools? Is it a psychologically significant nest building dental syndrome?) We have more plugs than a mosquito has offspring. One of them somewhere is mine. I confess I cannot find it. Is this, the place to which all those patients refer when they say I called to cancel the appointment but no one answered the phone? Why cannot the busy Investment Counsellor with today's best buy in gold shares call on that line instead of the other one where he says "Well Jean how are we today. . . how's the husband and children?" He knows me so well that despite bald head and fat jowls, he secretly thinks I am a woman. No one would look like me on purpose, it has to be a joke, albeit an inspired feminine one.

I tried to explain to the phone company that I had lost a wall plug somewhere; disbelief at the other end of the existing line. Rapidly thinking, I changed my request. I have asked them to come and shift this non-existent rented plug. Now the phone fellow can go home to his wife, and say "Well, Gloria . . . eh . . . you wouldn't believe it, these damn dentists are a funny lot, I was up at that Doc's office today 'cos he wanted a bloody plug that wasn't there shifted! What those guys do for a living, I dunno, eh!" But don't laugh yet, wait till you hear what happened then! △



Canadians can be humorous, and are sometimes but rarely, even uproarious, so they say. Our major pioneer in the barren fields of Glum was not a cowboy riding into the dying western sunset and falling off this horse into Georgia Strait, but a university professor who lived his summers in Orillia, Ontario, a practical joke if ever I saw one. To wit, a Doctor, to Philosophy not to Dentistry was this Stephen Leacock. When newly titled Doctor, Leacock was reputed to have been on the ferry to Duluth or Detroit or somewhere from Toronto, when the Purser's assistant went through the passenger deck paging "Is there a doctor on board?" Newly-minted Doctor of Philosophy Leacock responded and questioned why he might be wanted. On being told that the pretty young 2nd Stewardess had twisted her knee, he thought for awhile, and then attended the Purser's cabin to ascertain the Stewardess's knee. But he told us that a newly-minted Doctor of Divinity had beaten him there. Ah yes, but back to his summer house. The last time I saw Orillia, the streets were not young and gay, but rather were spattered with neon signs announcing "Charley's Grill — Fine Food", and "Wong's Canadian and Chinese Cuisine", midst an architecture suggesting stasis about 1905. He was one of the first of the pioneers in Frozen Fun, and I and Orillia am plugging along in his tradition. The last time I saw Orillia, I went to Leacock's house on the lake, and paid to enter. The ticket office was a decayed bus turned into a bookstall/ticket office parked in the garden. Ah thought I, the Orillia City Burghers who proudly accepted responsibility for the bus do have a sense of humour, but bizarre in the choice of location for dead buses — right in the garden of Canada's humorist/author's home!

Such humour afflicted me once. I was awakened one night at 1:00 a.m. by a breathless daughter who cried "Hey Dad, there's a Volkswagen in the garden!" That was astonishing news as was the sight of a tired Beetle lying on its side neatly between two shrubs, slumbering away. Two fire engines, six police cars, one ambulance, a tow truck and associated jolly night-riders, and, a dog and self

CLEARLY
MORE CONVENIENT.
CLEARLY
MORE PATIENT PLEASING.

Introducing the first
no-mix periodontal protection.

No more mixing.
No more discomfort—
and self-consciousness—
for your patients.

Messy, bulky, con-
spicuous perio dressings
simply can't compare
with new light-cure
Caulk BARRICAID. Its
application is faster and easier for you plus far more
comfortable for your patients.

Dispense directly, cure immediately.

You can dispense BARRICAID directly from the syringe
onto the surgical site. Or place it on a mix pad and apply
with your usual technique. Either way, you'll find
BARRICAID handles far more easily than your current
dressing.

With BARRICAID, you cure when *you're* ready, using
a standard visible light cure unit. It sets immediately—
forming a barrier against food impaction, leakage, fouling,
or discoloration. Its high elasticity and tear strength offer
retention that will please you and your patient.



Apply BARRICAID directly from the syringe.



BARRICAID (on right) is clearly superior.

Help your
patients feel
better, look
better.

BARRICAID cures
to a thin, translucent film.
It's far more comfortable
and less conspicuous for
patients. And it lets you

monitor the surgical site without disruption.

Try BARRICAID now—and save.

For a limited time, we're offering special introduc-
tory savings on BARRICAID—and a money-back guaran-
tee. For details, contact your Caulk Dealer, or call:
(416) 635-7662

**See you at the Canadian Dental Association Convention.
Booth numbers 107 and 108.**



**Caulk
Dentsply**

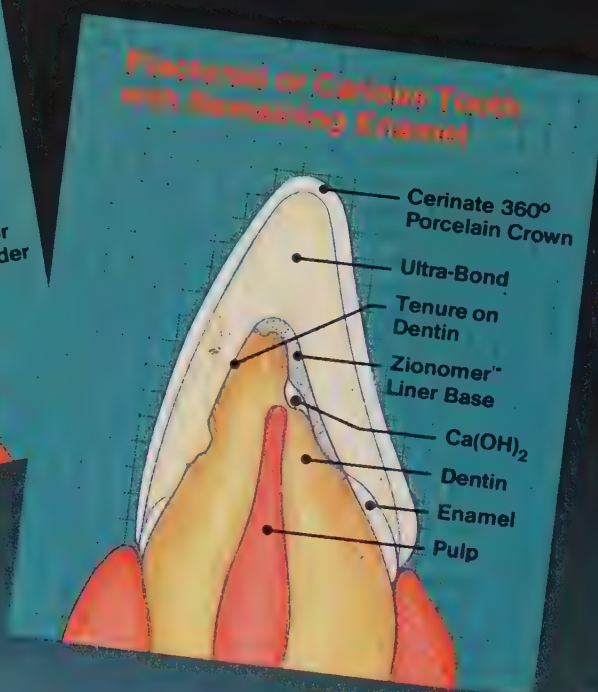
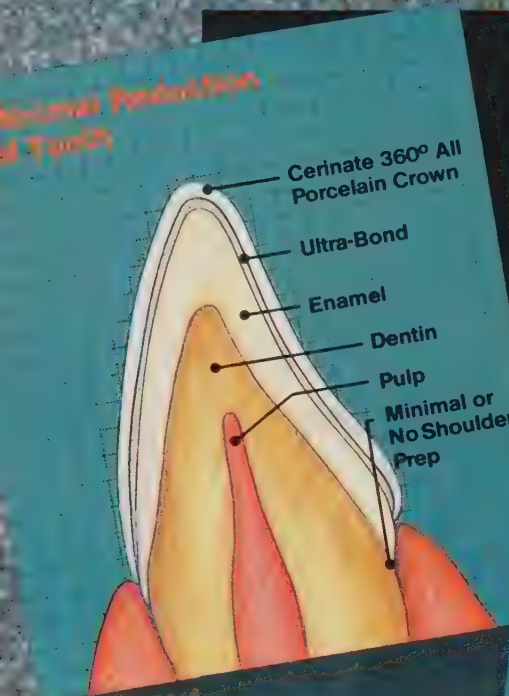
The L.D. Caulk Company of Canada
Division of Dentsply Canada Limited
1100 Lodestar Road, Unit 8
Downsview, Ontario M3J 2Z4

D E N T S P L Y

360 Degrees of Beauty and Strength

360

ALL PORCELAIN CROWN

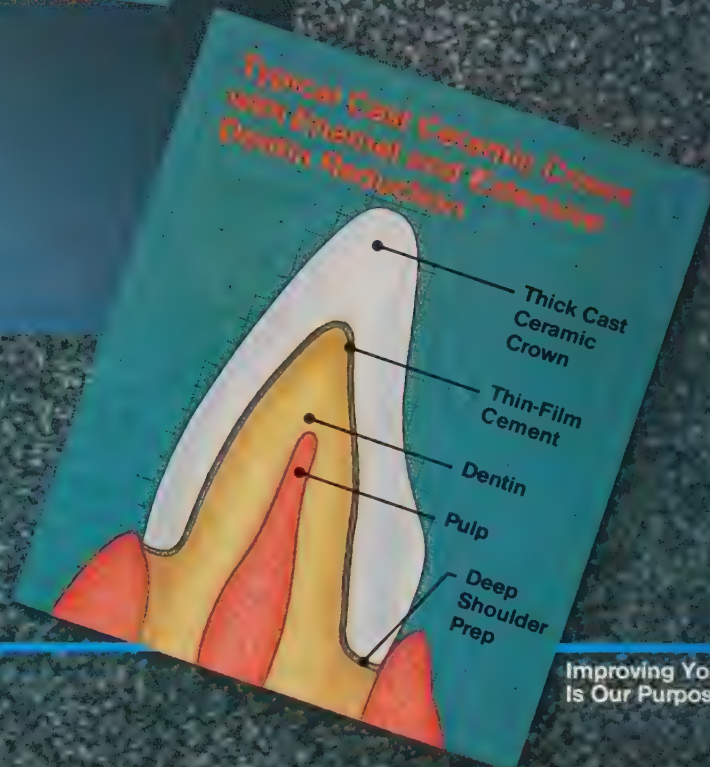


For further information or
the location of your nearest
Cerinate Lab, call toll-free:
800/4 DEN-MAT or
800/433-6626

Den-Mat

Den-Mat Corporation
P.O. Box 1729
Santa Maria, CA 93456

Extra porcelain thickness, opacity and incomplete bonds contribute to the failure of cast porcelain crowns. Stronger and thinner than ordinary cast porcelain, the Cerinate® 360° All Porcelain Crown can be made as thin as 0.2 mm from high-strength, reinforced porcelain manufactured exclusively by Den-Mat and available only at a Cerinate Laboratory. Its polychromatic appearance, strength and durability are further enhanced when the crown is placed with a solid foundation of ADA Certified Ultra-Bond® restorative and bonded to dentin with Tenure™. This combination of technologies allows for a feather-edge at the margins, minimizing the need for shoulder preps and less tooth reduction overall, resulting in more conservative, stronger, all porcelain crowns. Combine your clinical skill with advanced technology of Cerinate Porcelain to achieve the highest level of patient satisfaction.



Improving Your Practice
Is Our Purpose.™

August
Août
1988
Vol. 54
No. 8

JOURNAL

Canadian
Dental
Association
L'Association
Dentaire
Canadienne

A

If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER À
L'EXPÉDITEUR
Port payé



UNIVERSITY OF TORONTO (1)
LIBRARY SERIALS DEPT
TORONTO, ONT

M55 1A5

1A 8812

▲ Geriatric Dentistry
Continuing Education

▲ La chirurgie dentaire
gériatrique
Éducation permanente

TWO RELIABLE ASSISTANTS



Your fight for improved dental health is our fight too. Crest was the first cavity fighting toothpaste to put fluoride into demineralized areas, and was also the first with patient support programmes. Through its Preventive Dentistry message, Crest has always supported your efforts to inform your patients about better dental care.

The message continues today with Crest's tartar fighting formula. With the same proven anticaries system as the regular Crest formula, Crest's calculus fighter contains nonabrasive pyrophosphate which chemically interferes with supragingival calculus formation.

Crest's assistance is ongoing, sharing dental research findings and offering helpful patient information. Now more than ever you can trust Crest in your practice and recommend it with confidence.

CREST. DENTAL ASSISTANCE YOU CAN TRUST.



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

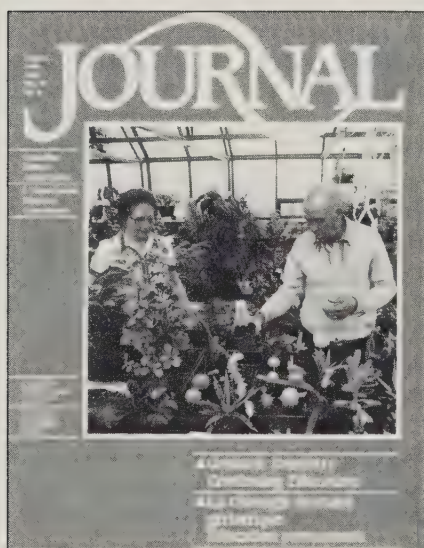
Canadian Dental Association
l'Association Dentaire Canadienne

August 1988

Vol. 54 No. 8

Features

- | | | |
|--|------------|--|
| Times are changing —
are you ready?
Geriatric Symposium
draws a record
attendance | 581 | P. Ralph Crawford, DMD |
| Smokeless tobacco and
oral disease | 586 | A review
J.H.P. Main, BDS, PhD.
Denis Lecavalier, DDS, MSc |
| Effect of a daily 2%
chlorhexidine rinse | 595 | On the oral health of an
institutionalized elderly population
Lawrence Yanover, DDS, PhD, et al. |
| A conservative cosmetic
identification concept
for prosthetic appliances | 601 | W.A. Cotter, DDS, MS
S.A. Chaney, BDS, MSD |
| Liquide crévulaire | 607 | Partie I: Signification clinique. |
| | 611 | Partie II: La collection
Jean-François Tessier et al. |



Geriatric Dentistry
La dentisterie gériatrique
(Photo courtesy of Health and Welfare Canada)

Departments

- | | |
|------------|--|
| 557 | Editorial
The progress in geriatric dentistry |
| 558 | President's Column
Summer Reflections |
| 559 | News Update
Customs Commercial Postal System
Canada's Oldest Dentist — an interview |
| 563 | Obituaries |
| 568 | CDA RSP |
| 569 | Briefly |
| 571 | Book Reviews |
| 574 | Resource Centre
Theme: Geriatric Dentistry |
| 575 | Continuing Education |
| 619 | Announcements |
| 625 | Marketplace |
| 626 | Advertiser's Index |
| 630 | Back Talk
'Phone Fun' |

PUBLICATIONS COMMITTEE

Chairman

Dr. John Hardie

Members

Dr. P.C. Desautels
Dr. H. Jack Stockton
A. Jardine Neilson

JOURNAL STAFF

Executive Director

A. Jardine Neilson

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Scientific Editor (English)

Dr. Robert Turnbull

Scientific Editor (French)

Dr. Pierre C. Desautels

Advertising Manager

Anna Spencer (416) 482-1830

Classified Advertising and Circulation Coordinator
Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics

Dr. Aaron Fenton

Oral Pathology

Dr. James Main

Orthodontics

Dr. Alan Lowe

Public Health

Dr. Donald Lewis

Endodontics

Dr. Barry Korzen

Paedodontics

Dr. Howard Stein

Oral Surgery

Dr. Huan Pham

Forensic Dentistry

Dr. Robert Dorion

Periodontics

Dr. Harvey Freedman

Nutrition

Nina Burgess

Canadian Dental Hygienists Association
Carol Worobey

Canadian Dental Assistants Association
Elaine Wesley

Canadian Dental Association

EXECUTIVE COUNCIL

President

Dr. R.J. Markey
Vancouver, B.C.

Past-President

Dr. J.R. Robertson
Summerside, P.E.I.

President-Elect

Dr. J.W. Niedermayer
Regina, Saskatchewan

Dr. K.L. Roach
Pembroke, Ontario

Dr. D.E. MacFarlane
Vancouver, B.C.

Dr. Ray Wenn
Charlottetown, P.E.I.

Dr. L.S. Allen
Winnipeg, Man.

Dr. G. Dubé
Lachute, Quebec

Dr. B. Sigfstead
Edmonton, Alta.

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini
Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws

Dr. G.H. Peacock
Saskatoon, Saskatchewan

Dental Materials & Devices

Dr. R.Y. Barolet
Montréal, Québec

Education and Accreditation

Dr. A. Schwartz
Winnipeg, Manitoba

Ethics

Dr. R. Thordarson
Vancouver, B.C.

Hospital and Institutional Services

Dr. E.L. MacInnis
Halifax, N.S.

Information Services

Dr. P. O'Brien
St. John's, Nfld.

Insurance and Investment

Dr. J. Durran
Hamilton, Ontario

Nominations

Dr. J.R. Robertson
Summerside, P.E.I.

Student Affairs

Miss M. Shildkraut
Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer

A. Jardine Neilson

Manager, Executive Services

Sandra Déziel

Council Secretary

Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation

Brian Henderson

Education, Accreditation, Professional Councils

Coordinator of Accreditation

Lorraine Emmerson

Surveys, graduate, undergraduate,
auxiliary programs, hospital services

Associate Director, Professional Councils

Janice Forsythe

Third Party Dental Plans, Health Care,
Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration

Joel R. Neal

Administration, finances, information systems,
membership

Business Manager

Shelagh Dunlop

Accountant

Joan Wilkes

Membership Secretary

Lydia Allison

COMMUNICATIONS

Director of Communications

Linda Teteruck

Dental Aptitude Testing Program, Journal,
Dental Awareness Program, Student Affairs,
Resource Centre, MEDLINE, Conferences,
Conventions, media relations,
public information.

Information officer

Kimberley Allen-McGill

DAT Coordinator

Win Mobley

Librarian/MEDLINE

Martha Vaughan

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Advertising Manager

Anna Spencer (416-482-1830)

Production/Circulation/Classified
Jennifer McClinton

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384 Postage paid at Ottawa.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada — \$42; United States — \$44; all other — \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the journal.

ISSN0709 8936

“The fire is smouldering but the wood’s wet!”

Every reader raised prior to electric stoves and microwave ovens, or others of today who enjoy weekend camping, know the problem of encouraging a blazing fire when the wood is wet. The analogy may be drawn to the progress of geriatric dentistry.

Doubtless we all know the demographics affecting the seniors today and into the 21st century. Today the elderly group exceeds the number of teenagers in Canada, with 2,700,000 over 65 years of age. The over 80 cohort is the fastest growing segment of our population.

By the time the baby boomers (those born between 1946 and 1961) become seniors in the second decade of the next century, every fifth Canadian will be over 65. What then are governments, universities, dental associations and dentists doing about the dental prospects for year 2023, just 35 years away? Not Much!!

A recent telephone survey to each of our ten faculties of dentistry, to the dental associations and to the licensing bodies revealed various activities but generally there exists much in words and little in action when the oral health prospects of the elderly are concerned.

The Federal Government is to be commended for some of their activity for seniors. The Honorable George Hees was appointed Minister of State for Seniors which hopefully will bring more focus to their overall needs. Health Minister Jake Epp’s “Achieving Health for All — a Framework for Health Promotion” makes much reference to the well-being of all Canadians but little or no concern for oral health. A recent Health and Welfare catalogue listing selected publications and pamphlets on “Aging and the Aged” had not one pamphlet related to dentistry out of a total list of 113. The one publication specifically related to seniors, “Smile. . . for Life”, does deserve credit; it is an excellent brochure and was produced by The Canadian Dental Hygienists’ Association with a grant from the Federal Government.

Apart from Alberta where the government provides a dental subsidy of \$1,200 every two years, for seniors, there is no specific action in any other province. Ontario which by virtue of size has more seniors than any other area in Canada, has set up a study commission on senior dental health, but a reliable dental association source indicated that the commission has become a “political football — it’s not pragmatics but politics”.

In the spring of 1983 ACFD sponsored a workshop/conference on treating and research in geriatric dentistry. A list of recommendations was issued for our faculties. Admittedly, nine of our ten dental faculties indicated some level of teaching geriatrics — mostly didactic, integrated into other lectures — but none had a specific clinical teaching program. It appears that dental students have but brief “observation” exposure to senior clinical situations. The dental college dilemma is not new: where will the clinical time come from?

At the latest count, Canada has no opportunity for post graduate education in geriatric dentistry. Our brightest young dentists must go abroad for further study. This year there will be only three or four specially trained dentists in the geriatric field within the whole country.

Provincial dental associations are generally “talking about it”; some have specific committees investigating various projects. The ODA held a press conference in 1987 and suggested particular programs to government but little has developed.

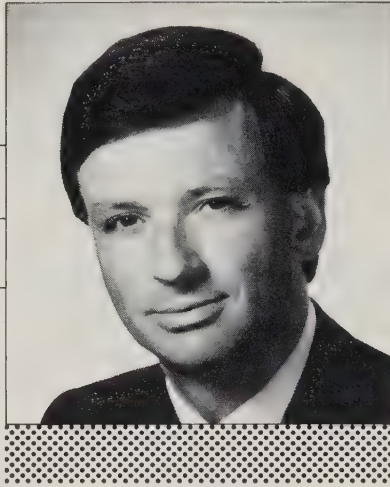
The Canadian Dental Association, by virtue of its national concept, has an opportunity to be a key organizing factor and provide a leadership role in achieving optimal oral health for the elderly. However, the old “health care remains a provincial prerogative” issue rises once again. The CDA will provide, upon request, logistical government relations support to provincial associations as they negotiate with their respective governments.

The plight and problems facing dentistry as it views the rapidly increasing dental needs of Canada’s seniors cannot be ignored. The smoldering plans and rhetoric in all areas must be fanned into activity if the slogan “Dental Health — Good For Life” also applies to today’s and tomorrow’s elderly.

*P. Ralph Crawford, DMD,
Editor, JCDA*

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted.

President's Column



Summer reflections — momentum in dentistry

An August column is a good opportunity to reflect on the twelve months that have passed. Even the harshest critics of the dental profession are soothed by the warm summer evenings. It doesn't last long. Already the days are shorter, the nights cooler and September lurks around the corner. Your new President will have spent several months preparing for the priorities and demands of the coming year. The process is a continuing one, and is constantly being refined to maintain the momentum and provide the leadership essential to meet the challenges ahead.

Organized dentistry used to work in cycles. Society executives had the luxury of the summer off to prepare for the coming year; September was always the target to really get the wheels in motion. This is no longer the case. Activities at all levels evolve and the process never stops. The challenges to organized dentistry have become relentless, and we are indeed fortunate to have a number of talented and enthusiastic people ready to assume leadership roles as the need arises. This new energy is what keeps us going.

The past year has seen our organization make progress on a number of fronts. Our objective has been to more strongly position ourselves as a national health organization. Dr. Ralph Crawford in his June 1988 Journal editorial was positive about CDA's leadership role on a number of national issues. There were two things he said which stood out. First, we *should* lead the way, and second, we are only doing our job. He is absolutely right. We have improved, we are on the right track, and I feel confident we will stay there.

Your national association has an identity or a persona that will get stronger. The determination of policy and the definition of positions on national issues will never be easy in this country. We will continue to need good will, incredible effort, patience, and wisdom to maintain our momentum into the 1990's.

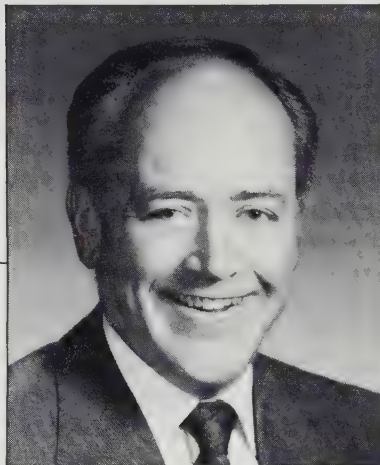
My own experience as part of the CDA team has been extremely rewarding. Our Executive Director and staff have been a particular help to me this year. Our Councils and Committees have performed in a trojan manner. Without exception, those I have dealt with from every dental organization in this country have been cooperative at all times. We have made progress even where we have had significant differences.

To my successor, Dr. Jack Niedermayer go my best wishes, as he takes the baton and runs the next lap. To my friends and colleagues who have made it all possible, thank you for the experience of a lifetime.

*Ron J. Markey, DDS, MSD,
President of the Canadian Dental Association*

CDA Taxation Committee reports: Customs Commercial Postal System

Dr. Robert N. Hicks, Chairman of CDA's Taxation Committee, wishes to advise the dental community in Canada about the new customs postal system — how it works and future customs clearance procedures. He has prepared a letter to inform dentists and has attached a new schedule to be retained in dental offices.



June 1988

Dear Colleague:

Re: Customs Commercial Postal System Harmonized System Classifications

During the past year, dental offices that import dental goods directly into Canada have experienced the new Customs Commercial Postal System. This system results in imported parcels being delivered directly to your office, eliminating the need to clear these goods at a customs office.

When an imported parcel arrives at your office, a yellow envelope is attached which contains Customs E14 Forms (1 yellow, and 1 blue). You are required to provide the necessary tariff numbers, tariff and tax rates, description of the goods, etc. on the form and submit the necessary duties and taxes.

In 1987, the CDA Taxation Committee provided CDA members with tariff numbers, tariff rates and tax rates for a number of commonly used dental goods. However, in January 1988 a new classification language for coding imported goods (the Harmonized System) came into effect. Dental offices now require these new tariff item numbers to complete the E14 forms.

Attached to this letter, is a new schedule of commonly used dental goods with current tariff numbers, tariff rates (duty), and federal sales tax rates recently compiled by the Taxation Committee. This schedule should be retained in your office for future Customs clearance procedures.

If additional information is required on goods not included in this list, please contact a customs broker in your area.

Sincerely yours,

A handwritten signature in cursive script that reads "Robert N. Hicks".

Robert N. Hicks, DDS, MS
Chairman, Taxation Committee

DENTAL GOODS

Duty and Federal Sales Tax

Goods	Tariff Number	Federal Duty Sales Tax		Goods	Tariff Number	Federal Duty Sales Tax	
Abrasive wheel-points	9018.90.00.00	Free	12%	Napkins — not paper	3005.90.92.00	17.5	12%
Acrylics and tray materials	3906.90.00.90	8.9	12%	Orthodontic bands	9018.90.00.00	Free	12%
Alloy — Amalgams	3006.40.90.00	12.5	12%	Orthodontic brackets	9018.90.00.00	Free	12%
Anaesthetics, Dental in cartridges	3004.90.99.19	9.5	12%	Orthodontic removable appliances	9018.90.00.00	Free	Exempt
— with Epinephrine	3004.90.99.19	9.5	Exempt	Orthodontic functional appliances	9018.90.00.00	Free	Exempt
Anaesthetic Syringes	9018.31.00.00	Free	12%	Orthodontic head gear appliances	9018.90.00.00	Free	12%
Arch wires, preformed	9018.90.00.00	Free	12%	Paper Products — Towels, cups, napkins, etc.	4823.60.00.90	10.2	12%
Arch Wire	9021.29.10.00	Free	12%	Pins and Posts	9018.90.00.00	Free	12%
Articulating paper	4823.20.90.00	10.2	12%	Plastic Products — cups			
Articulators/face bows	9018.90.00.00	Free	12%	— surgical drapes, etc.	3924.10.90.30 3924.90.90.59	13.6 13.6	12% 12%
Bite wafers — wax	3407.00.20.00	7.5	12%	Pumice	2513.19.00.00	Free	12%
Cements	3006.40.10.10	Free	12%	Printed materials — instructions for patients	4901.99.91.00	Free	Exempt
Composition filling material — including temporary cement	3006.40.90.00	12.5	12%	Retraction Materials	3006.40.10.00	Free	12%
Cotton pellets/rolls	5601.21.20.00	22.5	12%	Rubber ligatures	9018.90.00.00	Free	12%
Crowns, bridges, dentures etc. i.e. dental prostheses	9021.29.20.00	10.2	Exempt	Rubber — Rubber dams, tubing etc.	4014.90.00.90	10.3	12%
Dental Chairs/units	9402.10.10.10	Free	12%	Screws (Star, etc.)	3006.40.10.20	Free	12%
Dental Stones/plaster of Paris	2520.20.10.00	Free	12%	Screws — expansion	9018.39.00.00	Free	12%
Developer and Fixer	3707.90.00.00 2551	Free	12%	Sterilizers	8419.20.10.00	Free	12%
Buffing wheels — cotton	5911.90.90.00	19.1	12%	Sterilizing Solutions	3808.40.20.90	Free	12%
Fluoride solution — gels etc.	3306.90.00.90	12.2	12%	Stools (Dental)	9402.90.90.80	10	12%
Handpieces and parts	9018.90.00.00	Free	12%	Teeth — Artificial	9021.21.00.00	Free	Exempt
Hypodermic needles	9018.90.00.00	Free	12%	Toys	9503.30.00.20	12.7	12%
Impression materials	3407.00.20.00	7.5	12%	Waxes — Casting	3407.00.30.00	Free	12%
Instruments	9018.90.00.00	Free	12%	Waxes — Impression	3407.00.20.00	7.5	12%
Matrix bands	9018.90.00.00	Free	12%	Waxes — inlay/sticky/utility	3407.00.20.00	7.5	12%
Model Trimmer	8464.10.90.90	9.2	12%	X-Ray machines & parts	9022.11.00.00	Free	12%
Models, dental	9023.00.00.00	Free	12%	X-Ray Solutions	3707.90.00.00 2551	Free	12%
				X-Ray Aprons & Shields	6210.10.00.00 1000	Free	12%

Note:

The above list generally reflects the federal sales tax status of the specified dental goods when sold to dentists in their daily in-office dental practices. However, some of the goods mentioned in the list and shown to be taxable at the rate of twelve per cent may qualify for conditional federal sales tax exemption when purchased by dental or orthodontic laboratories (i.e. manufacturers or producers of preformed and preassembled orthopaedic and orthodontic braces and/or artificial teeth) to be incorporated into and form a constituent and component part of a tax exempt good (e.g. arch wire, brackets, pins, posts, screws, etc. to be incorporated into tax exempt preformed and preassembled orthodontic appliances exempted as orthopaedic braces by way of subsection 29(1) and section 18 of Part VIII of Schedule III to the Act). Δ

FDI/Johnson & Johnson Awards double in value, increased in frequency

Big increases have been announced in the value and frequency of the Johnson & Johnson Preventive Dentistry Awards which are made by the Fédération Dentaire Internationale (FDI).

Awards of US \$4,000 are to be made in each of two categories, Community Programmes and Research. This represents a doubling in value of each prize funded by a grant from the Johnson & Johnson Dental Products Company of the USA. Both awards will also be made annually from 1989 instead of every three years as has been the case.

The awards will next be presented at the FDI's 77th Annual World Dental Congress to be held in Amsterdam, Netherlands, from 2-8 September 1989. In order to qualify, entries must be received at FDI Headquarters in London by 1st October this year.

Two international panels of experts — in community dentistry and in dental research — are being established by the FDI to judge the entries.

Any person working in the dental health field, whether a dentist, an auxiliary or a student, may submit an entry, provided he or she has documented experience in the chosen field and is not an employee of either Johnson & Johnson or the FDI.

The awards are designed to encourage the development of innovative approaches to oral health. The winners will be those who in one or other of the categories have, in the estimation of the judges, demonstrated such an approach.

The categories of awards are described as follows: *Community Dentistry* — Preventive approaches used for community education or public information purposes; *Research* — Innovative methodologies and new research findings which will facilitate prevention of dental disease and improve oral health.

Full details of the conditions of entry may be obtained from, and entries should be sent to: The Executive Director, Fédération Dentaire Internationale, 64 Wimpole Street, London W1M 8AL, United Kingdom.

Entries which do not arrive by 1st October will automatically be considered for the following year's awards which will be presented in Singapore. △

CDA Resources Utilization Committee formulates a national survey format

The Professional Resources Utilization Committee of the Canadian Dental Association (chaired by Dr. Brad Holmes of Kenora) sponsored a meeting of the National Dental Epidemiology Project group in June in Montreal. The National Dental Epidemiology Project Coordinating Committee is composed of: Dr. David Banting, Dr. Jean-Marc Brodeur, Dr. Tony Hargreaves, Dr. Amid Ismail, Dr. Donald Lewis, Dr. Gordon Thompson (Chairman), and Dr. Ken Zakariasen, have initiated a format for a national survey.

The priority for the National Dental Survey would be for a sampling of adults. The priority age groups are as follows: 35-44 (adults), 65-74 (seniors), and 13-14 (children).

A national sample would be selected for each of these age groups and at least one-quarter of the oral examinations would be done by a national team (Team Canada). The remainder of the province (or territory) could be done by a regional or provincial (or territorial) group of examiners.

The Coordinating Committee has two coordinators for the northwest, two for Ontario, one for Quebec, and two for Atlantic Canada. The northwestern region will consist of each of the four western provinces, Yukon, Northwest Territories and possibly Alaska (with U.S. support). The Atlantic region would be structured as the four individual Atlantic provinces. The regional coordinators will work directly with coordinating committees for each province (or territory) which will include representation from the provincial dental faculty (where applicable), department of health, provincial dental society (and licensing body) and others as required.

Consideration has been given to the various indices that would be used and this documentation will be collated before a further meeting is held in the fall. Once the criteria have been established for the various indices, this material will be distributed to the provincial groups for their review and input. In addition to the clinical examination, there will be a questionnaire on socio-demographic data and attitudes. The format allows for provinces or territories to add additional indices that they feel are practical for their purposes over and above the finalized survey instrument.

The funding of this project will require some innovative financing. There will be a need for federal funding (Health and Welfare Canada and possibly the Medical Research Council), as well as support from provincial governments, national and provincial dental associations, business and industry.

To be a truly national survey, it will require a concerted effort on the part of all areas of organized dentistry at the national and provincial levels. It is significant that a national group has been established by the Canadian Dental Association to administer and coordinate a national dental survey. The success of this project is not only dependent on appropriate funding, but the assistance and cooperation of all dental administrators.



Dr. Gordon Thompson
Committee Chairman

FDI Council recommends new subscription formula

New membership applications. Congress dates set.



World Dental Leaders in London

The FDI Council in London on 11th May for their unprecedented mid-year meeting. Back row: Dr. P. Hanedoes (Netherlands), Dr. M. Castelein (Netherlands), Dr. C.B. Ross (New Zealand), Dr. R. Matheis (Austria), Professor R. Duckworth (UK), Dr. W.R. Thompson (Canada). Middle Row: Dr. R. Cronström (Sweden), Dr. J. Monnot (France), Dr. S. Hanson (Belgium), Dr. H. Erni (Switzerland), Dr. K. Yamazaki (Japan), Dr. W. Wong (Hong Kong). Front Row: Dr. F. Bowyer (USA), Dr. L. Telivuo (Finland), Dr. C.H. Williams (USA), Dr. R. Gonzalez Giralda (Spain).

An unprecedented mid-year meeting of the Council of the Fédération Dentaire Internationale (FDI) was held in London from 9th – 11th May. The meeting had been demanded by the General Assembly at last year's World Dental Congress in Buenos Aires for the principal purpose of discussing proposals made by its 'Task Force' set up to report on the FDI's structure and organization. A number of recommendations were agreed upon in London and these will be submitted for approval to the next FDI General Assembly, to be held in Washington, D.C. in October.

The recommendations include a new formula for calculating FDI membership subscriptions paid by national dental associations. The new formula has been devised to allow smaller national associations and those from developing countries to take part in the FDI, without the Federation having to make excessive demands for funding from the larger associations in the industrialized nations.

Other recommendations agreed by the Council in London concerned the FDI's organization. The importance of the Federation's scientific role was recognized by the Council in its recommenda-

tion that a new place be created on the Council itself for a representative of the scientific standing Commissions. The new Council member would have a key role to play in co-ordinating the development of

the FDI's scientific program and ensuring that it responds to the needs of the member associations and the profession worldwide.

To streamline the Commissions themselves, the Council agreed that the eight members of each Commission should be reduced to four.

The Council further examined its own composition in the light of the Task Force report and voted to recommend that the number of FDI Vice-Presidents be reduced from four to two, while the number of Councillors be increased from four to six. The effect of this change would be to create greater access to the senior offices of the FDI.

Two new applications for membership of the FDI were agreed by the Council which will recommend acceptance by the General Assembly in Washington. The applications were made by the Bahrain Dental Association and the Costa Rica College of Dental Surgeons.

Dates for forthcoming World Dental Congresses were also agreed by the Council for submission to the General Assembly. These were 6th–12th September 1990 for the 78th Annual World Dental Congress in Singapore; and 7th–13th October 1991 for the 79th World Congress in Milan, Italy. Δ

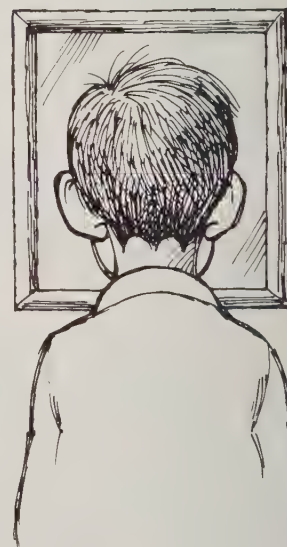
Did you know?

If you get what you want, in your struggle for self
And the world makes you king for a day
Just go to the mirror and look at yourself
And see what that man has to say.

For it isn't your father, or mother, or wife
Who upon you their judgement will pass
The fellow whose verdict counts most in your life
Is the one staring back from the glass.

He's the fellow to please, never mind all the rest,
For he's with you right up to the end
And you've passed your most difficult test
If the man in the glass is your friend.

You may fool the world down the pathway of years,
And get pats on the back as you pass
But your final reward will be heartache or tears
If you've cheated the man in the glass.



Obituaries/ Nécrologie

Box, Edward: of Ottawa, who graduated from the University of Toronto in 1929 and practised in Ottawa for 45 years, numbering among his patients a prime minister, cabinet ministers and ambassadors. Three of his brothers, Dr. Hugh Box, Dr. Harold Box and Dr. Robert Box, were also dentists, who practised in Toronto.

Godfrey, Norman T: Born in Lovern, Saskatchewan in 1917, Dr. Godfrey was graduated from the University of Toronto, in 1941. He practised in Kerrobert and Prince Albert, Saskatchewan, before joining the Department of Veterans' Affairs. He served in that role in Saskatoon and Edmonton. He had been in retirement in Arizona, Duncan and Victoria, B.C. He was a life member of the CDA.

Lalonde, François Claude: Né le 21 juillet 1948 et diplômé de l'Université de Toronto en 1976. Le Dr Lalonde habitait à Alfred, en Ontario.

Kilgour, J.F.: of Collingwood, Ontario, was born in 1914 and was graduated from the University of Toronto in 1941. He was a Life Member of the CDA.

Samson, Jacques: Né le 18 février 1905 et diplômé de l'Université de Montréal en 1928, le Dr Samson habitait à Sillery, au Québec.

Wall, Bernhard J: of Saskatoon, Saskatchewan, was born in 1908 and graduated in dentistry from the University of Alberta, in 1939. He was a Life Member of the CDA.

Zack, Hyman: of Willowdale, Ontario, was a graduate of the University of Toronto Faculty of Dentistry, in 1931. He was a Life Member of the CDA.

Poster contest winners judged by Executive Council

Top entries in the National Dental Health Month Poster Contest, as usual, exhibited unusual talent, ingenuity and theme awareness.

The national winners in each category were decided by members of CDA's Executive Council, co-inciding with an Executive Council meeting in Ottawa, on June 10.

The winners

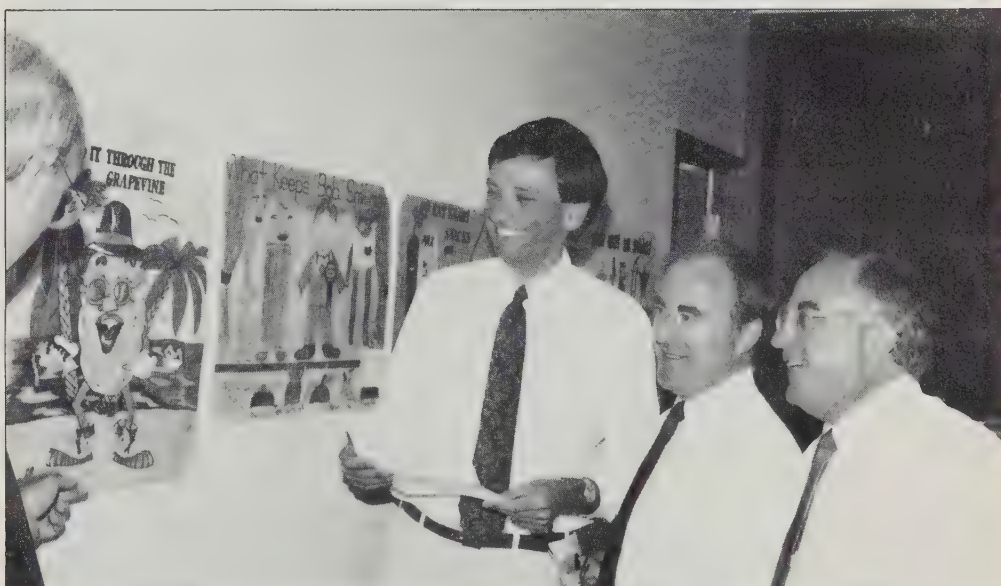
The top poster in the Kindergarten-Grade One category was the work of Sandra Butt, of Halifax, Nova Scotia. Sandra is six years old.

In the Grades Two to Four category, the winner was Shaena Palmer of Edmonton, Alberta. Shaena is nine.

Angela Gouthro, of Bras d'Or, Nova Scotia was the winner in the Grades Five to Seven classification. Angela is 12 years old. Δ



Just a small sampling of the imposing array of young poster artists' talent from across Canada.



CDA President-Elect Jack Niedermayer, (extreme left), President Dr. Ron Markey, Immediate Past-President Dr. John Robertson and Dr. Ray Wenn, found amusement in the wit displayed on some of the entries.

1988 Winter Olympics dental service was model for those to come

The medical services provided at the 1988 Winter Olympics held in and near Calgary, Alberta, were termed the best

organized in the history of the Games. The 2,000 athletes had access to the highest possible quality of medical,

physiotherapeutic and dental facilities.

Eight years before the Games, two Calgary dentists, Dr. Vern Jones and Dr. Mike Gerald, conceived the idea of a mobile-type dental clinic that could be utilized after the Olympics for treatment needs in northern Alberta. With support from Dr. Tom Curry, Alberta's Director of Dental Health Services, the Alberta government provided a state-of-the-art, 2,000 square foot, four operatory unit.

A total of 42 patients, 36 athletes and six support personnel, were treated. Dental services ranged from broken cusps to lost fillings, gingival problems, periapical abscesses, dental repairs and extractions.

Dental emergencies were treated at two locations. Those athletes training or competing at Nakiska-Mount Allen or at the Canmore Nordic Centre (who experienced dental problems) were treated in Canmore at the offices of Drs. Kim Fuhrman and Lloyd Evans. The main treatment centre was located at the polyclinic in the athletes' village at the University of Calgary. The mobile dental clinic was provided by the Government of Alberta to be used by the OCO 88 for the month of February. It was then dismantled and transported to northern Alberta to service the dental needs of native peoples.

'Volunteer Games'

The 1988 Winter Games came to be known as the "Volunteer Games" and although many dental personnel offered their services, OCO 88 limited the volunteers to three dentists and three certified assistants. The staff consisted of Drs. Lester Ikuta, Bruce Hagen and Mike Gerald; Assistants Mickey Ikuta, Gail Armitage and Barbara Peterson. Each two-person team was to be available at the clinic from 1:00 p.m. to 7:00 p.m. for 10 days each, for the month of February. The rest of the day, they were on an on-call basis.

The scope of the dental treatment was limited to emergency service only, as it had been at preceding Winter and Summer Games. Treatment was limited to athletes, coaches, medical personnel and IOC delegates who had accreditation to the athletes' village. The area was tightly secured by the RCMP and Calgary City Police. Δ



Exterior view of the mobile clinic provided by the Government of Alberta.



A view of the four operatories within the clinic.

Final message from Convention '88 Chairman

Dr. Herb Link, Chairman of the 1988 Canadian Dental Association Convention, Edmonton, August 21-24 announces that all is in readiness for the Convention to take place.

He says "early indications are that we are going to have a good turnout, but if you still would like to register, you can do so at the Convention. Late arrivals will certainly be accepted. When registering, don't forget the Pre-Convention courses, featuring **Dr. James Cottone**, speaking on "Infection Control and Dentistry: The Challenge of Hepatitis and AIDS", on Saturday, August 20, and **Dr. William Becker**, speaking on "Changing Concepts in Periodontal Therapy: Scaling and Root Planing Isn't Enough", on Sunday, August 21. Both courses are ideally suited for dentists and staff.

"At this time I would like to thank the members of our Convention Committee. All members have unselfishly contributed many hours to help make the Convention a success. A special thanks to Dr. Ron Markey, Ms. Linda Teteruck and Dr. Michel Jahjah for their immeasurable help and guidance.

"Exhibit space has been sold out since the beginning of June. This represents 177 booths, which means there will be a wealth of knowledge of dental products and equipment available on the exhibit floor.

"I have enjoyed informing you each month of the Committee's preparations and progress. It has been an opportunity for me to establish new friendships and I look forward to meeting all of you in Edmonton."

CDA thanks supporters

The Canadian Dental Association extends its appreciation to the following groups and organizations for their support of convention activities.

- Nobelpharma Canada Inc. — Implant Symposium
- Listerine Antiseptic — Periodontal Pre-convention Course by Dr. William Becker
- Aurum Ceramic Dental Labs — Esthetics Lecture
- Charge/Dent Ltd. — Carrying Cases
- Medi-Dent Services — Pens
- CDSPI — Message Centre and Final Program Book
- John O. Butler Co. — Monday Luncheon

RCMP seeks aid to identify murder victim



Face of victim

The Royal Canadian Mounted Police, North Vancouver, B.C. detachment, seeks through this Journal's readership,

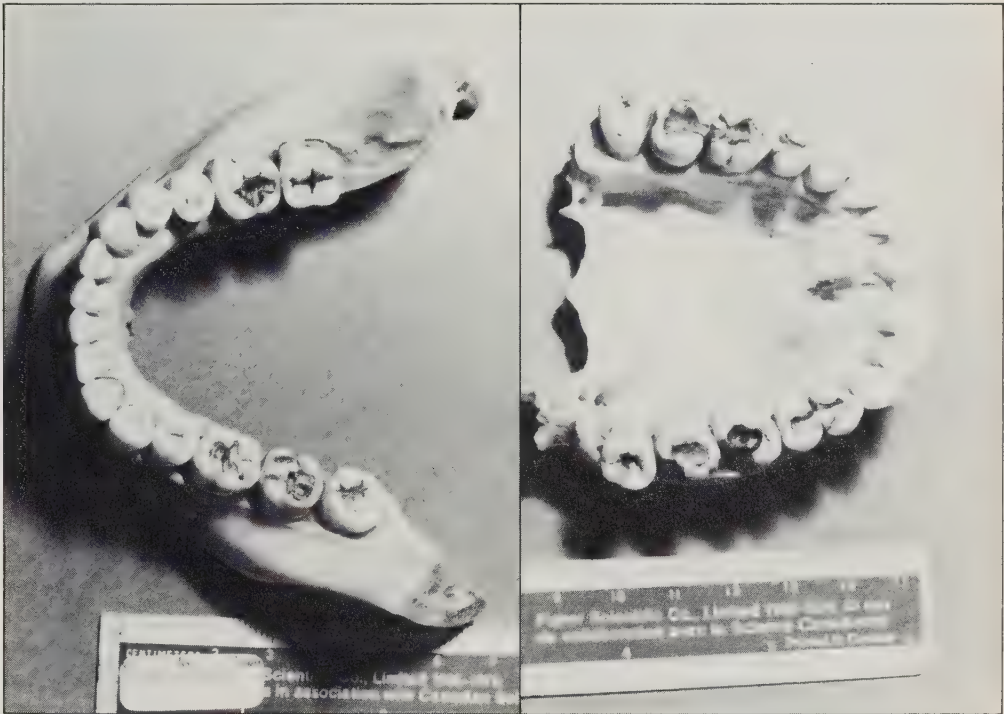
to possibly identify the body of a native female, found in Lynn Creek in the District of North Vancouver.

The body is that of a Caucasian/part Native female, between 18 and 30 years of age, five feet five inches in stature, weight 122 pounds, with brown hair. She had suffered severe head injuries.

The RCMP have supplied (herewith) a copy of the victim's dental chart and photographs of the female's face and dentition.

Should any reader be in a position to offer information, he/she is asked to contact:

Constable Susan J. Commance
Telephone (604) 985-1311, Local 429
RCMP, P.O. Box 86427
North Vancouver, B.C. V7L 4K8
Refer to Case (or File) 81 - 4828, 81 Feb 18.



Dentition of the victim

UPPER JAW																												
TTR		X	X	X																								TTR
	18	17	16	15	14	13	12	11																				
TAB																												TAB
RIGHT SIDE														LEFT SIDE														
TTR				X																								TTR
	48	47	46	45	44	43	42	41																				
TAB	X																											TAB
LOWER JAW																												

Reunions at Convention '88

As usual, a number of reunions of note will be held during the
1988 CDA Convention in Edmonton, August 21-24.
A list of those reunions follows:

EVENT	LOCATION	EVENT	LOCATION
(A) Former Members of Royal Canadian Dental Corps Lancaster Park <i>Mon. Aug. 22</i> Cocktail Contact: (4:00 – 6:00 p.m.) Dr. K. Wallace 11117 – 57 Ave. Edmonton, Alta T6H 0Z7 Phone: 436-4530 Major Charlie Hunt 26 Southdale Drive, Markham, Ont. L3P 1J7		(F) Class of '63 (University of Alberta) Westin <i>Mon. Aug. 22</i> Contact: Dr. B.G. Kindrachuk 301, 8225 – 105 St. Edmonton, Alta. T6E 4H2 Phone: 433-8564	
(B) Class of '49 Four Seasons <i>Mon. Aug. 22</i> Contact: Dr. K. Burnham 9110 – 88 Ave. Edmonton, Alta. T6X 1M3 Phone: 466-2161		(G) Class of '63 (University of Manitoba) Westin <i>Sat. Aug. 20</i> Reception/Dinner (6:00 p.m.)	
(C) Class of '50 Dr. Young Home <i>Mon. Aug. 22</i> Contact: Dr. J. Young 303 8225 – 105 St. Edmonton, Alta. T5N 1S9 Phone: 433-1154		(H) Class of '65 Edmonton Golf & Country Club <i>Mon. Aug. 22</i> Contact: Dr. E. McIntyre 68 Meadowlark Shopping Centre Edmonton, Alta. T5R 5W9 Phone: 484-1336	
(D) Class of '57 Faculty Club <i>Mon. Aug. 22</i> Contact: Dr. J. Theodore, 10502 – 86 Ave. Edmonton, Alta. T6E 2M6 Phone: 439-5384		(I) Class of '73 Four Seasons <i>Mon. Aug. 22</i> Contact: Dr. B. Leroy 101, 8230 – 105 St. Edmonton, Alta. T5E 5H9 Phone: 432-1012	
(E) Class of '58 Faculty Club <i>Mon. Aug. 22</i> Contact: Dr. James Duncan 306, 1711 – 4th St. SW Calgary, Alta. T2S 1V8 Phone: 228-3521		(J) Class of '74 Royal Glenora <i>Mon. Aug. 22</i> Contact: Dr. F. Hui 210 Millbourne Shopping Centre Edmonton, Alta. T6K 3L6 Phone: 462-8224	
		(K) Class of '78 Derrick Club <i>Mon. Aug. 22</i> Contact: Dr. R. Klippert 705 Centre 104 5274 Calgary Trail S. Edmonton, Alta. T6H 5G8 Phone: 435-2888	

Canada's oldest dentist marks 80th year since his graduation

Each year dentists from across the nation gather to celebrate graduation anniversaries; some their 25th, some their 30th, 40th, or 50th, and for a few, maybe even their 60th.

Dr. Clarence Brooks of Toronto will certainly be the only member of his class to recall graduation from the University of Toronto School of Dentistry — 80 years ago!

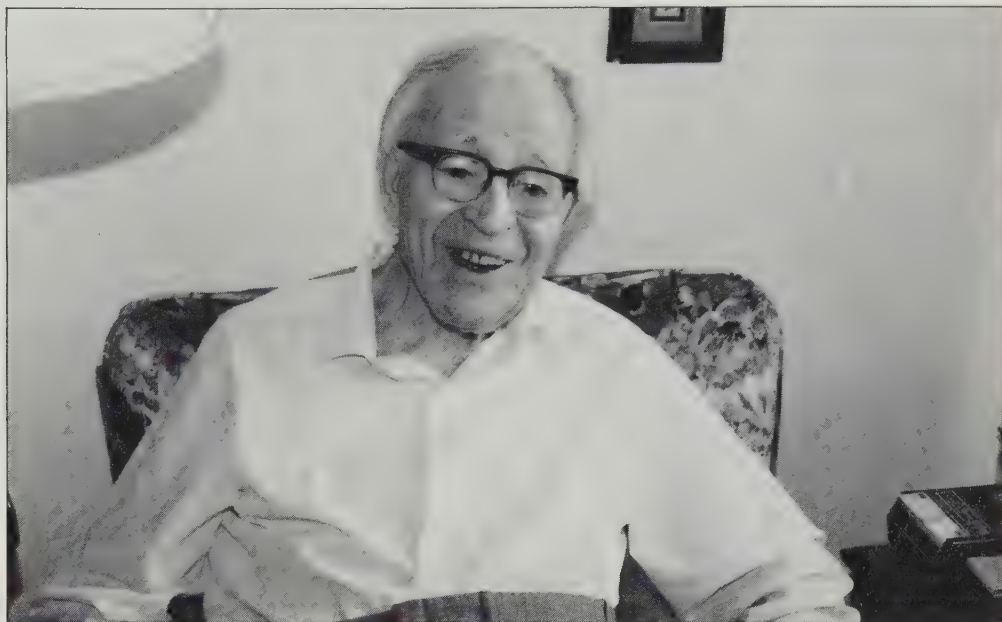
On September 26 next, Dr. Brooks will be 102 years old.

It was a rare privilege to spend several hours with this quiet, gentle, scholarly dentist who graduated when foot pedal dental engines were standard equipment. A warm spring sun was streaming in the window of the seniors' residence that overlooked the scenic Don River Valley. The conversation quietly recalled an era of dentistry that Dr. Brooks alone could relate as first-hand information.

The use of a walker and failing eyesight were the only obvious conditions that hinted at his 102 years. Undoubtedly he had been interviewed on numerous occasions and asked the same questions, but that in no way deterred the twinkle in his eyes, a quick wit and frequent smiles that periodically broke into soft laughter. (And yes, he does have most of his own teeth!)

It was with relief that the over-worked phrase, "to what do you attribute your longevity?" was avoided. Dr. Brooks, early in the conversation, modestly supplied the answer, in sorts. "Isn't it strange, all my days I led a quiet life, not seeking any special attention or recognition, and now without any particular effort on my part I've managed to live beyond 100 years and have gained notoriety."

The attainment of living beyond the century mark and indeed the entry into a life of dentistry, Dr. Brooks attributes to a



Dr. Clarence Brooks

certain amount of serendipity, strange chance happenings that direct one's life. Raised on a small farm near Woodstock, Ontario, Dr. Brooks recalled his boyhood school days and with a chuckle said his decision to go into dentistry was destined by the fact that he never could solve that "damn x factor".

"My father wanted me to be a medical doctor and I wanted to be an engineer. I was interested in anything mechanical but that 'x factor' was against me. Dentistry was a compromise". He added that a chance half-hour conversation with a Woodstock dentist, Dr. Angus Clarke, led to a one year dental apprenticeship in Dr. Clarke's office (at \$3.00 a week) in preparation for entrance to the University of Toronto.

In 1904, when Clarence Brooks, age 18, enrolled in dentistry, the Toronto School had only been established 16 years. Entrance was junior matriculation and as Dr. Brooks recalled, "tuition was about \$100.00 a year". 1904 was significant though; it was when the dental program changed from a three year to a four year course.

A review of a 1904 Dominion Dental Journal revealed that a dental program over 80 years ago was just as exhaustive as today. Although biochemistry was in its infancy the basic science courses were formidable. A quote from the same Journal stated:

no candidate will be admitted for licensure who has not inserted at least 100 fillings, 25 of which are

gold and at least eight whole or partial dentures . . . and one full orthodontic case.

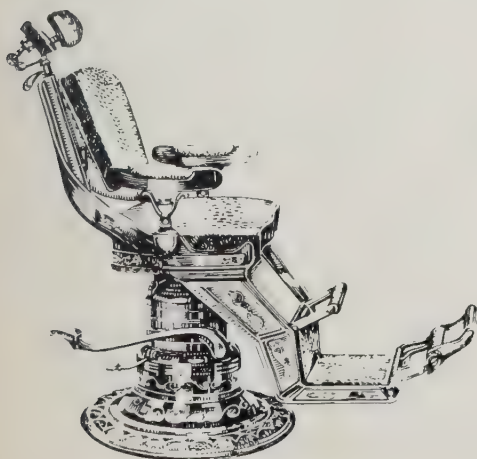
And all of that accomplished with hand instruments, steel burs and a foot pedal engine. Plus all the laboratory work!

An excellent student

Young Clarence Brooks was an excellent student. The 1908 Dominion Journal listed the RCDS examination results for the graduation class of 31 members. His marks must have been the envy of many: operative 85, prosthetics 88, orthodontia 85, physiologia/therapeutics 82, anaesthetics/materia medica 92, physiology/histology/bacteriology 85.

Dr. Brooks opened his first office above a florist's shop at Avenue Road and Dupont in Toronto, where he remained for five years before moving to a fairly new building — the Royal Bank building at Yonge and Bloor, practising there until retirement in 1957. He had high praise for professional buildings, remarking that comradeship and opportunity for conferals contributed to a healthy professional attitude.

Encouraged to talk about the early days, Dr. Brooks said that their training had well prepared them as all-round practitioners; "the specialties hadn't been christened yet". There were few commercial laboratories and dentists did all phases of dentistry. Only compound and plaster were available for impressions; vulcanite was the 'wonder material' for dentures; amalgam fillings were fifty



and seventy-five cents each, and a gold crown was considered expensive at \$8.00. Dr. McTaggart's 1907 cast gold inlay technique was demonstrated in Toronto the year Dr. Brooks first hung up his shingle.

Asked what were some of the 'high points' of dental advancement, Dr. Brooks thought pain control could well head the list. Prior to 1904 and 1905 cocaine was all that was available until Alfred Einhorn developed Novocaine. Dr. Brooks remembered well his introduction to block anesthesia around the time of World War I when Dr. A.A. Smith gave a 'hands-on' seminar using platinum needles and wet specimens. "Nitrous oxide", he said, "was always tricky. You worked as fast as you could before the patient woke up." Prolonged general anesthesia was performed using chloroform administered by physicians visiting the dental office.

Early x-ray machine

Unable to recall the exact date, Dr. Brooks said he had one of the first

x-ray machines in Toronto. He had gone to Rochester, New York for a three day seminar given by Ritter. Sadly remembered were early physicians and dentists who lost fingers, hands and lives to radiation.

Mention was made of the almost 'miraculous' manner in which antibiotics, not common until the 1950's, controlled infection. Many after hour calls attended severe alveolar abscesses when incision and drainage were about the only avenue of relief. It was not unusual to have a patient hospitalized and near death due to dental infection.

Aware that he retired in the mid-fifties after near fifty years of practice, he was asked if he had used high speed. "No," he said, "but I remember some of the dentists were wary because it was feared that at those fantastic rpm's an error could rip someone's mouth up." (Borden's first air-rotor was demonstrated in Chicago in 1957.)

It didn't take long to realize that the manner in which Dr. Brooks practised was determined by the dedication he

bestowed upon patient and profession. "I started with one chair", he said. "It cost me about \$200.00 brand new, and I added a second chair later on for brief appointments, but I always figured my patient came to my office with considerable inconvenience and they deserved my undivided attention."

Attempting to delve deeper into this remarkable man's inner character, the question (with some trepidation) was asked regarding his spiritual, religious thoughts. He pondered for a moment and said, "Two things I don't talk about much are religion and politics; but I can say I was never envious of other people's possessions or achievements, and basically in life you yourself have to accept responsibility for your own actions — there's nowhere to hide!" He never sought the public eye or aspired to a dental organization office, but "I hardly ever missed an ODA Convention or good seminar and often travelled to the Chicago mid-winter meeting, by train of course, and was amazed that almost 2,000 dentists attended."

Avid automobile buff

Dr. Brooks held a life-long admiration for the automobile, remembering seeing his first as a kid in school. "We all rushed to the school window to watch that car with the 'toboggan-like' front chug by. My first car ride was with the country doctor. To me a car was more than a car, it seemed like a 'vital' thing that needed care. My wife and I (they had no children) loved motoring holidays and drove coast to coast a number of times. How well I remember a 1918 Dodge touring car; I thought it kind of 'low and racy', and it was the first of its kind to have a self starter." After retirement, and until his mid eighties, he continued driving as a volunteer driver for the Princess Margaret Hospital.

Somewhat sadly, he remembered that he had retired 'under compulsion' at age 71. Mrs. Brooks had been ill for some six and a half years and he was 'night nurse' throughout that period. A fall on some ice had badly injured his left shoulder producing a tremor in the thumb and index finger. Realizing he could no longer practise with perfection, he turned the key in his office for the last time on July 1, 1957. Three days later Mrs. Brooks passed away.

Dr. Brooks, as he recalls his eightieth anniversary of graduation can be assured that his lifetime of dedication to our profession is an inspiration to us all. △

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	June 30, 1988	May 31, 1988
Fixed Income Fund	61.59971	60.68766
Common Stock Fund	14.08183	12.95931
Money Market Fund	40.76707	40.52184
Balanced Fund	25.40766	24.40966

Interest rates:

Guaranteed Fund

Term	*Interest rates as at	
	June 30, 1988	May 31, 1988
1 yr	9.45%	9.20%
2 yr	9.70%	9.45%
3 yr	10.00%	9.70%
4 yr	10.20%	9.80%
5 yr	10.30%	10.10%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

June 30, 1988	May 31, 1988
\$96,624,536	\$92,784,448

For further information:



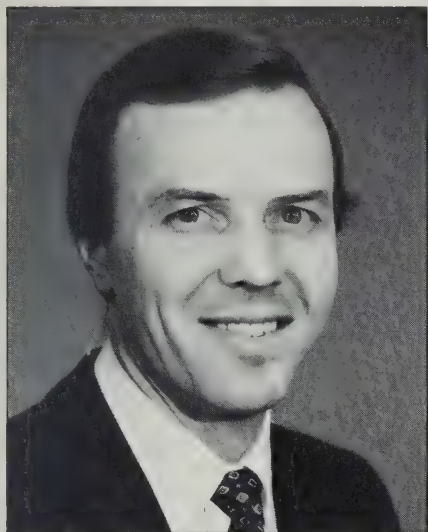
Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117



Dr. H.J. Stockton

Appointment

H.J. (Jack) Stockton, DMD, CFP, of the Faculty of Dentistry, University of Manitoba, has been named a member of the Canadian Dental Association's Publications Committee.

Dr. Stockton, who is a graduate of the University of Manitoba (DMD, 1968), is Course Coordinator for Practice Management. He is also a consultant in practice management and financial planning.

Articles written and co-authored by Dr. Stockton, on the subject of practice management, have been published in this Journal.

The Publications Committee meets at regular intervals to discuss CDA publications policy, new directions, format, effectiveness and fiscal matters.

Other members of the Committee are: Chairman, Dr. John Hardie, Dr. Pierre C. Desautels and CDA Executive Director Jardine Neilson. △

Recalling the old adage. . . "it's an ill wind. . ." AIDS has been creating business opportunities.

The president of a U.S. firm recently reported that the demand for latex gloves "has gone through the roof." The firm, Smith and Nephew Inc., has recently opened a new \$6 million manufacturing

facility in Whitby, Ont., near Toronto. It will operate around the clock and employ 60 workers.

The same company also has a plant at a neighboring city, Ajax, which has been operating at top capacity, but has not been able to meet the demand.

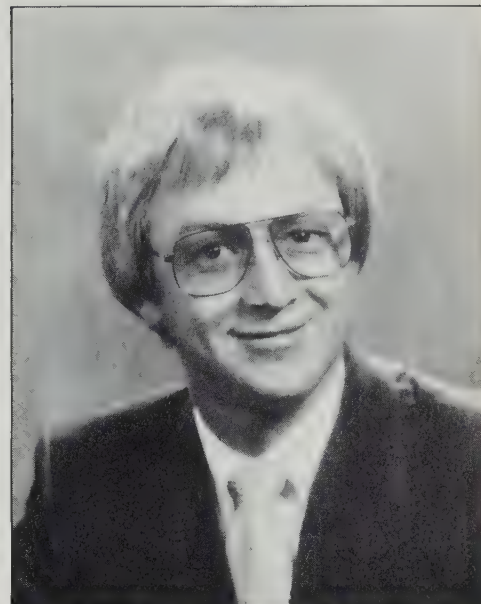
The company's President, Steven Arless, said the new Whitby facility will help to alleviate "a critical shortage of supply in the Canadian market."

Although latex gloves have long been used by physicians, the need for stringent infection control measures against AIDS has expanded the demand to dental teams and municipal service workers such as policemen and firefighters. △



Dr. Ernest R. Ambrose, left, Professor of Restorative and Prosthetic Dentistry, and former Dean at the University of Saskatchewan College of Dentistry, was recently presented with the 1988 SCADA Faculty Advisor Award. Dr. Leslie S. Burstein, right, President of SCADA, made the presentation at the Students Reception, hosted by Dentsply International, during the 65th annual session of the American Association of Dental Schools, in Montréal.

(SCADA — Alumni Association of Student Clinicians, American Dental Association — in making the award, recognizes the work of outstanding dental faculty members who advise students participating in a dental school's student clinician program.) △



Dr. Michael Tenenbaum

Dr. Michael Tenenbaum, of Dollard des Ormeaux, Québec, is the new President of the Mount Royal Dental Society.

He was elected at the general meeting of the Mount Royal Dental Society-Alpha Omega Fraternity, to serve for the 1988-89 term.

The other officers named were: Dr. Sam Israelovitch, as Vice-President; Dr. Marvin Werbit, as Corresponding Secretary; Dr. Mel Schwartz, Recording Secretary; Dr. Howard Katz, Treasurer; Dr. Morris London, Associate Treasurer; Dr. Steve Cymet, Editor, and Dr. William Steinman is the Immediate Past-President.

Dr. Tenenbaum, a graduate of McGill University's Faculty of Dentistry, worked for a year at the Herzl Family Practice Centre and then went into private practice in Dollard des Ormeaux. He is a partner in the West Island Health Centre. Dr. Tenenbaum has served on the executive of Alpha Omega-Mount Royal Dental Society for many years, and is a member of the executive of the Federation of Dental Societies of Greater Montréal.

Alpha Omega and Mount Royal Dental Society are a major component of organized dentistry in Montréal. They are also involved in various benevolent activities for the community at large, both locally and internationally. △

**NOW, FOR THE FIRST TIME,
IMPRESSIONS WITHOUT THE CONSTRAINTS OF TIME.**

INTRODUCING CAULK® GENESIS™ VISIBLE LIGHT CURE IMPRESSION MATERIAL.

An impression material that puts *you* in control.

Total control.

You'll have virtually unlimited working time. So you can cut procedure time for relatively simple cases. Or take all the time needed when the impression demands.

Then you cure when you're ready to cure. Not in five to ten minutes like your self-cure impression material. But in as little as 90 seconds—with your visible curing light.

You'll have maximum productivity. GENESIS requires no mixing; virtually eliminates waste; and bonds to itself, making retakes

faster and easier than ever before.

Total control.

Because GENESIS offers handling and performance far superior to any conventional impression material. You'll appreciate the higher levels of accuracy and stability. Plus it's odorless, pleasant tasting, completely biocompatible.

While the basic techniques are thoroughly familiar, our new technology provides some exciting

benefits. The clear cure-through impression trays allow visual inspection for fit before you use them. And GENESIS is translucent, so you can backlight the finished impression to get the ultimate readability.

Ask your Caulk® Dealer for a demonstration—and more information about the phenomenal advantages of new GENESIS VLC Impression Material. Now.

While you have the time.

Genesis
Visible Light Cure Impression Material

**Caulk
Dentsply**

The L.D. Caulk Company of Canada
Division of Dentsply Canada Limited
1100 Lodestar Road, Unit 8
Downsview, Ontario M3J 2Z4

D E N T S P L Y

THE AGING MOUTH

Editor: D.B. Ferguson

Karger, Basel
1987, 175 pages

The stated objective of this text is "to present an overview of the normal process of aging in key oral tissues". Beside the introductory chapter, there are four chapters on morphology:

- Age Changes to the Dental Pulp
- Morphological Changes in Human Salivary Glands
- Structural Age Changes in Salivary Glands
- Changes in Innervation of Dentin and Pulp with Age,

four chapters on metabolism:

- Collagen in Aging Bone of the Jaw
- Protein Synthesis in Salivary Glands as Related to Aging
- Collagen Changes in Dental Pulp
- Changes in Salivary Function in Older Subjects,

and two on oral sensory function:

- Aging and Chemosensory Perception
- Taste Perception Mechanism

Each of the chapters is written by an eminently qualified researcher in the area, resulting in a concise, authoritative, highly readable book with references up to 1985. Most dentists, be they primarily clinicians or researchers, should find useful information and references in this book. A number of our basic concepts of age-related changes are shown in this book to be wrong or based on inadequate research.

Xerostomia and its undesirable sequelae is a common clinical problem among the elderly. A widely held misconception is that decreased salivation is a normal age-related change. Not only does this book clearly demonstrate how the supporting data for this concept is deficient (thus pointing out useful directions for

research) but also summarizes existing data which indicates that the percent increase in stimulated salivary flow is actually greater in older individuals than younger ones. This would suggest the possibility that stimulants to salivary flow (e.g. sugarless lemon drops) may have therapeutic advantages over currently used saliva substitutes.

Our clinical decisions must always be based on sound, scientific data. The very core of this data is normal anatomy and physiology, which does change with age. Since disease is defined as a deviation from the normal range of structure and function, clinicians must periodically update their knowledge on these basic sciences. In our age of information overload, a brief, concise, authoritative, highly readable text on selected basic science (as well as clinical) subjects is the ideal medium for this endeavor. "The Aging Mouth" achieves these objectives admirably. Δ

This book was reviewed by:
John G.L. Lovas, DDS, MSc, MRCD(C)
Assistant Professor
Division of Oral Pathology
Department of Oral Biology
Dalhousie University
Halifax, Nova Scotia.

REMOVABLE PARTIAL DENTURES

Robert P. Renner and
Louis J. Boucher
with 15 contributors

Quintessence Publishing Co., Inc.
Chicago, 1987
415 pages, 706 illustrations, \$56

Robert Renner and Louis Boucher have approached the subject of partial dentures from a relatively new perspective in this textbook from Quintessence. Their aim

was to provide current, concise and comprehensive information dealing with patient-related procedures rather than laboratory procedures.

As an introductory textbook to partial denture prosthodontics, the initial chapters are particularly well organized and illustrated. The text begins with a discussion of the partially edentulous milieu, its sequelae and possible treatment modalities. The second chapter includes excellent introductions to the classification of partially edentulous arches and to the component parts of partial dentures. The strength of this chapter lies primarily in the profuse use of photographs and line drawings.

Other strengths of the text include sections on medico-legal issues in dentistry, prosthetic implications of systemic diseases and patient instructions. The latter topic is presented in a single, concise chapter. It includes one of the most complete textbook discussions on care and maintenance of partial denture prostheses. The chapter on examination, diagnosis and treatment planning and the chapters on mouth preparations and maxillomandibular relations are relatively complete and thorough.

Despite these strengths, there are several deficiencies in the text which preclude the reviewer from recommending it as a single reference source for the undergraduate dental student or the practicing dentist. The section on direct retainers includes many designs but does not provide an accurate assessment of their relative importance. This is particularly true for some of the less traditional direct retainers (ie. the mesio-distal clasp, the RII clasp). Three different impression techniques are described, but the criteria given for the selection of one technique over another are vague. Some clinicians may take issue with the undercut recommendations for the various clasp designs

(up to 0.02" for cast clasps, up to 0.03" for wrought wire clasps). Other deficiencies of the text include a somewhat abbreviated index and a cursory discussion of indirect retainers.

This volume is clearly not intended as laboratory guide. However, it is the opinion of the reviewer that an introductory textbook should include at least a limited discussion of laboratory procedures in order to facilitate a comprehensive understanding of partial denture prosthodontics. Potential purchasers should be aware that this text includes no discussions of blockout, waxing or casting procedures.

"Removable Partial Dentures" is a promising book which fulfills the authors' objectives. For those interested in a detailed presentation of clinical principles and procedures it can be recommended as a useful reference text. Δ

This book was reviewed by:
Robert W. Loney, DMD, MS
Director, Division of Removable
Prosthodontics
College of Dentistry
University of Saskatchewan
Saskatoon, Saskatchewan

WHY ROOT CANAL THERAPY?

by Joel M. Berns

1986 Quintessence Publishing Co.

This book was specifically written to give the layman or dental patient a fairly complete general understanding of why and wherefore of Endodontic therapy.

It contains a simple clear explanation of dental anatomy, pulp disease, rationale for endodontic therapy, treatment itself, some complications and success rate of treatment. This is followed by a short section on common questions and answers.

The highlight of the book in my opinion, besides the clear, concise text, is the excellent quality of the high calibre colour illustrations. They are both quite accurate and descriptive. A person with no prior knowledge of root canal therapy should be quite well informed, having read this book.

By way of criticism, I found a minor contradiction which could be confusing to the uninformed reader. In the section describing dental anatomy, the author makes the statement, "the centre of the tooth is hollow". Several pages later, he states "The pulp chamber and root canals contain a living tissue called pulp." It

would have been much clearer to state that a space exists in the centre of the tooth which contains living tissue, rather than making two apparently conflicting statements.

In the question and answer section, root fracture is mentioned as one of the possible reasons for failure of root canal therapy. However, he fails to mention that this complication almost invariably results in loss of the tooth.

I was initially concerned about whether there would be a market for such a book. However, on second thought, I feel it would be an excellent acquisition by any dentist for his waiting room, for example.

Nonetheless, the author should be commended for a clear, concise, well written and beautifully illustrated piece of work. Δ

This book was reviewed by:
Marshall D. Peikoff
DMD, MScD, FRCD(C), FICD
Head of Section on Endodontics
Faculty of Dentistry
University of Manitoba

THE ANATOMICAL BASIS OF DENTISTRY Revised Reprint

Bernard Liebgott
(University of Toronto)

Toronto: B.C. Decker Inc.
The C.V. Mosby Co.
1986

pp. ix + 511. Illustrated.
Paperback:
U.S. \$29.50
Can. \$40.75

This book was first published in 1982 by W.B. Saunders Company and was favourably reviewed in this journal in December of that year (*J. Canad. Dent. Ass.* 48(12): 789). Despite the favourable review, many errors of anatomical facts were contained in the first edition which the author recognized subsequent to its publication, and which led to this "revised reprint". This new edition retains the identical format and pagination of the original publication, although 13 of the 327 illustrations have been redrawn. It is printed on slightly better quality paper than the original edition, although the binding has been reduced from hard cover to soft cover, making it far less sturdy than its predecessor. At least 35 errors in the original edition have been corrected in this new issue, enhancing the accuracy of an acclaimed text.

The commendable feature of making a generally unpopular undergraduate subject relevant to the practice of dentistry is the strong point of this text. The extent of coverage of postcranial structures for dental students is a subject of endless debate amongst gross anatomists, and the exposure provided to thoraco-abdominal and appendicular anatomy at different schools varies enormously. Accordingly, there can never be an "ideal" textbook of gross anatomy for dental students, for what is seen as too little (or too much) exposure of the nether anatomical regions by one school is seen as too much (or too little) coverage by another!

A serious shortcoming of this text is the brief treatment of neuroanatomy that no anatomist — or even dentist — would accept as dispensable. Coverage of the brain in 5 pages is minimal, although the cranial nerves are accorded more generous treatment in 20 pages.

In view of the increasing usage of computerized axial tomography in clinical practice, more views of transverse sections of the head at different planes, of which only one is provided in this text, would have enhanced its utility for the practising dentist.

The complete lack of references, except for the acknowledgement of borrowed diagrams, is a minor detracting factor of this book, minimizing its usefulness for advanced students. However, it was written for undergraduate students, and in this respect, it serves its purpose very well, demonstrating the teaching skills for which its author has been recognized by an "Excellence in Teaching" award by the International College of Dentists. Its widespread usage by dentists would provide a good background of understanding for clinical practice. Δ

This book was reviewed by:
G.H. Sperber
Professor of Oral Biology
University of Alberta
Edmonton, Alberta

CLINICAL PERIODONTOLOGY FOR THE DENTAL HYGIENIST

by Fermin A. Carranza, Jr. and
Dorothy A. Perry

W.B. Saunders Company 1986
Philadelphia, PA
301 pages \$29.50

Clinical Periodontology for the Dental Hygienist is a recent text written in

response to requests for a shorter version of *Glickman's Clinical Periodontology*. Dorothy A. Perry, a dental hygienist with a Ph.D. in education joined Fermin A. Carranza Jr. to rewrite the larger textbook and eliminate topics not considered essential to the practice of dental hygiene.

The resulting book is concise and well suited to the dental hygienist's role in the prevention, identification and treatment of periodontal diseases. There is a chapter detailing the microbiology and immunology related to dental plaque as well as several covering periodontal diseases. The authors make it clear that they are not emphasizing techniques of periodontal instrumentation, but rather the conceptual aspects of periodontology. This should motivate dental hygienists to provide individualized and complete care for patients with periodontal diseases.

The clinical examination is well detailed and emphasizes the value of assessing periodontal attachment levels as well as pocket depth. And the section in chapter 10 which gives guidelines for determining the prognosis of individual teeth is a useful one not often seen in textbooks of dental hygiene. The discussion of tooth and root morphology is a good reminder of the challenges and limitations of subgingival instrumentation. And dental hygienists will find the chapter on systemic conditions and their relation to periodontal disease to be current and a useful adjunct to therapy. Surgical periodontal therapy is covered in chapters 15 and 16 and will be helpful to the dental hygienist's understanding of the full range of periodontal treatment. The topic of maintenance therapy is well detailed and a useful guide to individualizing patient care since it clarifies the issue of recall intervals and includes a section on referring patients to a periodontal specialist.

Having compared this text with the larger version, I feel that the authors have done an excellent job of condensing material without sacrificing either its substance or philosophy. *Clinical Periodontology for the Dental Hygienist* is a welcome addition to the Dental Hygiene library. As a basic textbook it provides a current and concise reference for the dental hygienist and the references to the literature should encourage the reader to seek further information. Δ

This book was reviewed by:
Ellen Stradiotti, Dip. D.H., B.A.
Vancouver, B.C.

LIBRARY SERVICES

Commencing September 1, 1988, the following charges will be levied for services available from the Sydney Wood Bradley Memorial Library.

Service	Member	Non-member
MEDLINE Searches	Free	\$10.00 flat fee plus the search cost
All Photocopies *	\$5.00 for the first 10 articles; 10 cents a page thereafter	\$5.00 flat fee plus 10 cents per page
Monthly SDI	Free	\$30.00 per year
Package Library	\$5.00	\$10.00
Table of Contents	Free	\$5.00
General Inquiries	Free	Free

*Requests for articles from other libraries do involve extensive costs so these will be passed on to the user as they occur.

Over the years, the Sydney Wood Bradley Memorial Library of the Canadian Dental Association has provided a variety of library services at no cost to CDA members. However, the demand for these services has escalated and so too have the costs. Consequently, in order to maintain both the quality and variety of services to which CDA members are accustomed a small service charge must be levied.

We feel that the above schedule is both reasonable and competitive with those of other libraries and resource centres. In addition, charges have been structured to the advantage of the CDA member.

The Sydney Wood Bradley Memorial Library is appreciative of the support it has received from the dental profession over the years and looks forward to continuing this tradition of service in the future.

Should you require additional information on these changes, please don't hesitate to contact the library at: 613-523-1770 extension 223.

The Successful Dental Practice

The Institute for Practice Development presents a 1 day seminar at the beautiful Hyatt Orlando in Florida, just minutes from Disney World.

**FULLY ACCREDITED BY THE
ACADEMY OF GENERAL DENTISTRY**

The first Saturday in each month from July 1988 - June 1989. For registration or information call:

(800) 537-1726 or (813) 351-7699

Faculty: Stephen D. Eingorn, D.M.D.

Doctors \$175(in advance)-\$195(at door)-\$95 (aux. or spouse)

Geriatric Dentistry

La dentisterie gériatrique

1. Bachiman, R. and Solden, A. "Preparing dentists to meet the future challenge of geriatric dentistry at NYU." *New York Journal of Dentistry*. Dec/Jan 1986, pp. 272-4.
2. Devlin, H. and Barker, G.R. "Prosthetic and surgical care of the elderly radiotherapy patient: the GDP's role." *Dental Update*. May 1988, v. 15, no. 4, pp. 166-69.
3. Frank, A.S.T. "Gerodontics: a challenge to dentistry." *Dental Update*. June 1986, v. 13, no. 4, pp. 223-26.
4. Friedlander, A.H. and Solomon, D.H. "Dental management of the geriatric alcoholic patient." *Gerodontics*. Feb. 1988, v. 4, no. 1, pp. 23-27.
5. Geest, M. de and Chercq, M. de. "Aspects psychologiques du patient vieillissant." *Revue Belge de Médecine Dentaire*. June 1986, v. 41, no. 3, pp. 90-95.
6. Goodlin, R. "Modern dentistry for seniors." *Ontario Dentist*, Mar. 1988, v. 56, no. 2, pp. 24-5.
7. Heylen, D. "Skilled nursing home residents: assessing their dental needs." *California Dental Association Journal*. Oct. 1986, v. 14, no. 10, pp. 6-9.
8. Hoad-Reddick, G., Grant, A.A. and Griffiths, C.S. "Knowledge of dental services provided: investigations in an elderly population." *Community Dentistry and Oral Epidemiology*. Jun 1987, v. 15, no. 3, pp. 137-140.
9. Hoad-Reddick, G., Grant, A.A. and Griffiths, C.S. "The search for an indicator of need for denture replacement in an edentulous elderly population." *Gerodontics*. Oct. 1987, v. 3, no. 5, pp. 223-6.
10. JADA. "Dentistry and the older adult." *Journal of the American Dental Association*. Mar. 1987, v. 114, no. 3, pp. 298-307.
11. Kanterman, C.B. "Dentistry and the over-50 generation." *TIC*. Mar. 1986,

v. XLV, no. 3, pp. 1-4.

12. Katz, R.V. "Changing the curriculum: mirror the times, not the trends." *Journal of Dental Education*. Aug. 1986, v. 50, no. 8, pp. 470-73.
13. Karuza, J. and Miller, W.A. "Toward a new research agenda for geriatric dentistry under the current care scene." *Gerodontics*. Jun. 1987, v. 3, no. 3, pp. 107-8.
14. Leake, James L. and others. "Oral health status and need for dental care among elderly in East York, Ontario collective residences — 1985." *Canadian Journal of Public Health*. Sept/Oct. 1987, v. 78, no. 5, pp. 323-28.
15. MacEntee, M.I. "The dentist and the older patient: a review of the relationship." *Journal of the Canadian Dental Association*. Sept. 1984, v. 50, no. 9, pp. 675-8.
16. Mann, J. and others. "Current status of geriatric dentistry: educational activities in U.S. dental schools." *Journal of Dental Education*. Dec. 1987, v. 51, no. 12, pp. 705-8.
17. Mulligan, R. "Factors involved in establishing a geriatric dentistry clinic training and research program in an extramural institutional setting." *Gerodontics*. Jun. 1987, v. 3, no. 3, pp. 125-127.
18. Perner, A. and Landt, H. "Evaluation of the need perceived by general practitioners for further education in geriatric dentistry." *Gerodontics*. Feb. 1988, v. 4, no. 1, pp. 18-22.
19. Saxen, M. [editor] "Dr. Ronald Goldstein: geriatric patients are ideal candidates for esthetic dentistry." *Dental Management*. Aug. 1986, v. 26, no. 8, pp. 37-42.
20. Shosenberg, J.W. and Main, P.A. "Metropolitan Toronto committee provides dental care to geriatric patients." *Ontario Dentist*. May 1987, v. 64, no. 5, pp. 34-6.
21. Trull, E.E. and Deal, T.S. "A community based dental program for senior citizens." *Illinois Dental Journal*. Jul/Aug. 1986, v. 55, no. 4, pp. 258-9.

New Library Acquisitions

- Garber, David A., Goldstein, Ronald E. and Feinman, R.A. *Porcelain laminate veneers*. Chicago: Quintessence, 1988.
- McFee, Travis L. and Marleen Berg McFee. *The dynamics of professional marketing. How to make your marketing activities and patient relations efforts as much as 17-times more effective*. Salem: New directions Publishing, 1987.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5.00. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5.00 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherches bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982.

Téléphone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

Continuing Education

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Dalhousie University Faculty of Dentistry 5981 University Ave. Halifax, N.S. B3H 3J5	Halifax	Etched Metal Restorations	Fixed Prosthodontics	Sept. 16, 1988	Lecture Participation	Drs. Jack Gerrow & Richard Price	Limited to 16	\$270	GPs	Kate MacDonald (902) 424-2248
(As above)	Halifax	Infectious Diseases Ethical and Legal Considerations	Practice Management	Sept. 30, 1988 (Half-Day)	Lecture	Mr. R. Shekter	Open	TBA	GPs Specialists Assistants Hygienists	(As above)
(As above)	Halifax	TMJ Disorders and Orofacial Pain	Anxiety and Pain Control	Oct. 1, 1988	Lecture	Dr. William K. Solberg	Open	TBA	GPs Specialists Assistants Hygienists	(As above)
(As above)	Halifax	Sonics in Endodontics	Endodontics	Oct. 15, 1988	Lecture Participation	Dr. Kenneth Zakariasen	Limited to 30	\$180	GPs	(As above)
(As above)	Wolfville, N.S.	Clinical Update: Esthetic Composite Bonding	Operative Dentistry	Oct. 29, 1988	Lecture	Dr. Ronald Jordan	Open	\$160	GPs	(As above)
(As above)	Halifax	Periodontal Diseases: The Next Decade	Periodontics	Nov. 19, 1988	Lecture	Dr. Eric Freedman	Open	DDS \$110 Hygienists \$55	GPs Hygienists	(As above)
McGill University Faculty of Dentistry 740 Docteur Penfield Montréal, Qué. H3A 1A4	Montréal	Surgical and Prosthodontic Aspects of Osseointegrated Implants	Implants	Sept. 21, 22 & 23, 1988	Lecture Demonstration Participation	Drs. K.C. Bentley and D. Kepron	Limited to 40	TBA	GPs Specialists Hygienists Lab. Technicians Nurses	Mrs. Olga Chodan (514) 398-7221
(As above)	Montréal	Occlusal Splints and Adjustment in TMJ Problems	Occlusion	Sept. 23, 1988	Lecture	Dr. Ronald Jones	Open	\$75	GPs	(As above)
(As above)	Montréal	The Dentist as an Employer	Practice Management	Oct. 1, 1988	Lecture	Mr. Danny J. Kaufer	Open	\$75	GPs Specialists	(As above)
University of Toronto Faculty of Dentistry 124 Edward St. Toronto, Ont. M5G 1G6	Toronto	Cardio-pulmonary Resuscitation	Emergency Dentistry	Sept. 23 also Oct. 21 and Nov. 18	Participation	Emergency Training Programs	Open	\$70	Dental Team	Jennifer White (416) 979-4503
(As above)	Toronto	Restorative and TMJ in Everyday Dentistry	Prosthodontics	Sept. 23 & 24, 1988	Lecture	Dr. Clifford W. Fox Jr.	Open	\$350	GPs	(As above)
(As above)	Toronto	Prosthodontic Aspects of Osseointegration	Prosthodontics	Sept. 29 & 30, 1988	Lecture Demonstration Participation	Dr. George Zarb	Limited to 50	\$1,000	GPs	(As above)
(As above)	Toronto	Endodontics (Eight evening sessions) 6:30 - 10 p.m.	Endodontics	Oct. 6, Nov. 3, Dec. 1, Jan. 5, Feb. 2, March 3, April 6, May 4	Lecture	Dr. Barry H. Korzen	Open	\$100 one session or \$650 for 8 sessions	GPs	(As above)
(As above)	Toronto	Acute Oral Infections: Etiology and Management	Periodontics	Oct. 23, 1988	Lecture	Dr. Richard Ellen	Open	\$295 DDS \$175 DH	GPs Hygienists	(As above)
(As above)	Toronto	Seminars in TMJ, Occlusion & Restorative Dentistry		Nov. 11-12, Dec. 16-17, 1988	Lecture Participation	Dr. Clifford W. Fox, Jr.	Limited to 24	\$700	GPs	(As above)

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
University of Toronto Faculty of Dentistry 124 Edward St. Toronto, Ont. M5G 1G6	Toronto	Clinical Orthodontics	Orthodontics	Nov. 17, 18, 19, 1988	Lecture Demonstration	Dr. D.G. Woodside	Open	\$750	GPs	Jennifer White (416) 979-4503
(As above)	Toronto	Oral Medicine II (evening lectures 6:30 – 10 p.m.)	Oral Medicine/ Diagnosis	Oct. 20, Nov. 17, Dec. 15, Jan. 26, Feb. 23, March 30, April 13	Lecture	Dr. C.O. Munroe	Open	\$100 one DDS session \$550 7 sessions DDS \$75 one session DH \$400 7 sessions DH	GPs Specialists Hygienists	(As above)
(As above)	Toronto	TMJ Instrumentation and Techniques		Jan. 6, 7, Feb. 10, 11, March 10, 11, April 28, 29, 1989	Lecture Participation	Dr. Clifford W. Fox, Jr.	Limited to 24	\$1,300	GPs	(As above)
(As above)	Toronto	Oral Surgery Conference	Oral and Maxillofacial Surgery	Jan. 13, 1989	Lecture	TBA	Open	TBA	GPs Specialists	(As above)
(As above)	Toronto	Photography in Dentistry	Dental Photography	Jan. 28, 1989	Lecture Demonstration Participation	Rita Bauer	Limited to 12	\$195 DDS \$150 AUX.	Dental Team	(As above)
(As above)	Toronto	Periodontics for the General Practitioner Level I	Periodontics	Jan. 30, 31, Feb. 1, 1989	Lecture Demonstration Participation	Dr. D. Deporter	Limited to 16 DDS 8 Hygienists	\$700 DDS \$450 DH	GPs Hygienists	(As above)
(As above)	Palm Springs, California	Endodontics – Update	Endodontics	Feb. 12 to 19, 1989	Lecture	TBA	Open	TBA	GPs other	(As above)
University of Western Ontario Dental Science Building (Room 1003) London, Ont. N6A 5C1	London	“Homecoming” Lecture – Brunch	Lecture – Brunch	Oct. 15, 1988	Lecture	Dr. R.I. Brooke	Open	\$25	GPs Specialists	Mrs. Najet Hassan (519) 679-2111 (Ext. 6136)
(As above)	London	“Four Annual Symposium” Direct Bonding	General Dentistry	Oct. 28 & 29, 1988	Lecture	Drs. Gerald Wright & R.E. Jordan	Open	\$275	GPs Specialists	(As above)
(As above)	London	The Occlusion Series I – Fundamentals of Occlusion and Articulation	Occlusion	Nov. 4, 5, 1988	Lecture Participation	Dr. W.R. Teteruck	Limited to 16	\$750	GPs Lab. Technicians	(As above)
(As above)	London	Advances in Operative Dentistry – Hands on	Operative Dentistry	Nov. 11, 12, 1988	Lecture Participation	Drs. M. Suzuki & R.E. Jordan	Limited to 20	\$390	GPs Specialists	(As above)
(As above)	London	Special Patient Care – A New Perspective	W.H. Feasby Lecture	Nov. 25, 1988	Lecture	Dr. Saul Kamen	Open	FREE	GPs Specialists & Other Health Professionals	(As above)

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
University of Western Ontario Dental Sciences Building (Room 1003) London, Ont. N6A 5C1	London	Refresher Day in Paediatric Dentistry	Pedodontics	Nov. 26, 1988	Lecture	Dr. G.Z. Wright, Course Director	Limited to 25	\$185	GPs	Mrs. Najet Hassan (519) 679-2111 (Ext. 6136)
(As above)	London	Crown and Bridge — Back to Basics	Prosthodontics	Dec. 1, 2, 3, 1988	Lecture Demonstration Participation	Dr. D.R. Gratton, Course Director	Limited to 10	\$575	GPs	(As above)
(As above)	London	Orthodontics for the General Practitioner	Orthodontics	Jan. 27, 1989	Lecture Demonstration Participation	Dr. A.H. Mamandras	Limited to 16	\$190	GPs	(As above)
(As above)	London	Electro-surgery in General Practice		Jan. 27, 1989	Lecture Participation	Dr. D.R. Gratton, Course Director	Limited to 20	\$250	GPs	(As above)
(As above)	London	Those Who Are Current and Want to Remain Current	"Update 89"	Jan. 28, 1989	Lecture	Dr. G.Z. Wright, Course Director	Open	\$175	GPs Assistants Hygienists Others	(As above)
(As above)	London	"Looking Good" The Real Challenge in Restorative Dentistry	Operative Dentistry	March 3, 4, 1989	Lecture Participation	Dr. D.R. Gratton, Course Director	Maximum of 20	\$400	GPs	(As above)
(As above)	London	Dental Hygienists' Update	Dental Hygiene	March 4, 1989	Lecture	Dr. G.Z. Wright, Course Director	Open	TBA	Assistants Hygienists	(As above)
(As above)	London	Nitrous Oxide Oxygen Conscious Sedation	General Dentistry	Dec. 8, 9, 10, 1988	Lecture Demonstration Participation	Dr. Ian Schofield, Course Director	Maximum of 20	\$400	GPs Specialists	(As above)
(As above)	London	Occlusion Series II — A Gnathologic Waxing Course	Occlusion	Feb. 3, 4, 1989	Lecture Participation	Dr. W.R. Teteruck, Course Director	Maximum of 16	\$600	GPs Specialists Lab. Technicians	(As above)
(As above)	London	The Occlusion Series III — A Practical Approach to Occlusal Equilibration	Occlusion	April 7, 8, 1989	Lecture Participation	Dr. W.R. Teteruck, Course Director	Limited to 16	\$600	GPs Lab. Technicians	(As above)
(As above)	London	Osseointegration in Clinical Dentistry	Hospital Dentistry	April 13, 14, 1989	Lecture Demonstration Participation	Drs. D.H. Charles & George Zarb	Limited to 20	\$1,000	GPs	(As above)
(As above)	London	Computer in Dental Practice	Practice Management	April 28, 29, 1989	Lecture Participation	Drs. D.W. Johnston & David Kogon	Limited to 20	TBA	Dental Team	(As above)
(As above)	London	Nitrous Oxide-Oxygen Conscious Sedation	General Dentistry	May 4, 5, 6, 1989 Repeated from Dec. 8, 9, 10, 1988	Lecture Demonstration Participation	Dr. Ian Schofield, Course Director	Limited to 20	\$400	GPs Specialists	(As above)
University of Manitoba 780 Bannatyne Ave. Winnipeg, Manitoba R3E 0W3	Winnipeg	C.P.R. for the Dental Team	C.P.R. Certification	Sept. 17, 1988	Lecture Demonstration Participation	Ron Boyar, DMD, MSc. Janice Wood, RDH	Limited to 20	\$50	Dental Team	Karen McLean (204) 788-6331

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
University of Manitoba 780 Bannatyne Ave. Winnipeg, Manitoba R3E 0W3	Winnipeg	Pathology of the Tongue	Oral Pathology	Oct. 3, 1988	Lecture	Stephen Ahing, DDS, MSD & John Perry, DDS, MSc.	Open	FREE	Dental Team	Karen McLean (204) 788-6331
(As above)	Winnipeg	The Branemark Osseointegrated Implant System: Prosthetic Course	Prosthodontics	Oct. 21, 22, 1988	Lecture Demonstration Participation	Aaron Fenton, DDS, Dip. Prostho, MS, FRCD(C)	Limited to 40	\$600	GPs Specialists Lab. Technicians	(As above)
(As above)	Winnipeg	Dentistry – Now and in the Future: Part I	Dr. Zakariasen Lasers & Sonics Computer-Aided Restorations (Dr. Rekow)	Nov. 18, 1988	Lecture	Kenneth Zakariasen, BA, DDS, MS, PhD. Diane Rekow, DDS, PhD.	Open	DDS \$115 AUX. \$50	GPs Specialists Assistants Hygienists	(As above)
(As above)	Winnipeg	Dentistry – Now and in the Future: Part II	AIDS: Legal and Ethical Implications Tracey Tremayne-Lloyd	Nov. 19, 1988		Stephen Ahing, DDS, MSD, Tracey Tremayne-Lloyd, BA, LLB. James Friction, DDS, MS	Open	DDS \$115 AUX. \$50	GPs Specialists Assistants Hygienists	(As above)
(As above)	Winnipeg	Nitrous Oxide Sedation I	Nitrous Oxide Sedation	Nov. 26, 1988	Lecture	Ron Boyar, DMD, MSc.	Open	\$115	GPs Specialists	(As above)
(As above)	Winnipeg	Nitrous Oxide Sedation II & III	Nitrous Oxide Sedation	Dec. 10, 1988 & Jan. 7, 14 & 28, 1989	Demonstration Participation	Ron Boyar, DMD, Msc.	Limited to 18	\$600	GPs Specialists	(As above)
University of Manitoba/Alpha Omega Fraternity, 780 Bannatyne Ave. Winnipeg, Manitoba R3E 0W3	Winnipeg	Mixed Dentition Analysis	Orthodontics	Dec. 3, 1988	Lecture	Dr. Jack Dale	Open	FREE	GPs Specialists	(As above)
University of Manitoba/Manitoba Dental/Hygienist's Association 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Current and Future Employment Arrangements	Dental Hygiene Practice Management	Sept. 15, 1988	Lecture	Sheryl Feller, RDH, BA, MBA, CMC	Open	\$35	Hygienists	(As above)
(As above)	Winnipeg	Body Mechanics and Injury Prevention	Dental Hygiene	Nov. 5, 1988	Lecture	Cindy Grant, BPT, MCPA	Limited to 20	\$35	Hygienists	(As above)
University of British Columbia Faculty of Dentistry 105-2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver	Oral Pathology the Dental Hygienist's Perspective	Oral Pathology	Sept. 17, 1988	Lecture	Catherine C. Davis	Open	\$75	Hygienists	Jane M. Wong (604) 228-2627
(As above)	Vancouver	The Role of Esthetics in the Dental Office	Esthetics	Sept. 24, 1988	Lecture	Dr. Dennis P.A. Nimchuk, Course Coordinator	Open	DDS \$110 AUX. \$65	Dental Team	(As above)
(As above)	Vancouver	Quality Endodontics: The Key to Restorative Success	Endodontics	Oct. 15, 1988	Lecture	Drs. John Diggins & Martin Gelfand	Open	DDS \$110 AUX. \$65	Dental Team	(As above)
(As above)	Vancouver	Periodontal Prosthodontics:	Prosthodontics	Oct. 22, 1988	Lecture	Drs. John C. Kois & Frank M. Spear	Open	DDS \$110 AUX. \$65	Dental Team	(As above)

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
University of British Columbia Faculty of Dentistry, 105-2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver	Improving your Practice with Glass Ionomers:	Dental Materials & Devices	Oct. 29, 1988	Lecture Demonstration Participation	Dr. Ebb A. Berry	Limited to 90	TBA	Dental Team	Jane M. Wong (604) 228-2627
(As above)	Vancouver	Clinical Hypnosis in Dentistry:	Anxiety & Pain Control	Oct. 29, 1988	Lecture Demonstration Participation	Drs. Lee Pulos & Lance M. Rucker	Limited to 60	\$125	Dental Team	(As above)
(As above)	Vancouver	Occlusal Considerations in Restorative Dentistry	Occlusion	Nov. 5, 1988	Lecture	Dr. William H. McHarris	Open	DDS \$110 AUX. \$65	Dental Team	(As above)
(As above)	Vancouver	Ethics in Dentistry	Ethics	Nov. 19, 1988	Lecture	Dr. Christopher Clark, Course Coordinator	Limited to 50	\$125	Dental Team	(As above)
(As above)	Vancouver	A Review of Periodontic Therapeutic Modalities	Periodontics	Nov. 26, 1988	Lecture	Drs. Curtis Wade & Kenneth K.S. Lee	Open	DDS \$110 AUX. \$65	Dental Team	(As above)
(As above)	Vancouver	Osseointegration in Clinical Dentistry Prosthetic Course	Oral Rehabilitation	Dec. 2, 3, 1988	Lecture Demonstration Participation	Dr. George A. Zarb	Limited to 40	\$750	GPs Specialists	(As above)

THE UNIVERSITY OF TORONTO DEAN FACULTY OF DENTISTRY

The University of Toronto invites applications for the position of Dean of the Faculty of Dentistry, effective 1 July 1989. The Faculty offers programs leading to the degrees of D.D.S. and B.Sc.D. (Dental Hygiene) and, in collaboration with the School of Graduate Studies, the degrees of M.Sc. and Ph.D. It also offers postgraduate programs leading to diplomas in nine specialist areas. The Faculty, which is well recognised for its considerable academic strength, offers particular leadership within the Health Science group of Faculties of the University, and has a long-standing association with the University's Teaching Hospitals and other health agencies in the community.

The Dean is expected to provide strong and imaginative leadership in encouraging scholarly research, both basic and clinical, and innovative teaching of high quality. He/she will promote creative professional associations with the dental and health communities and strong relationships with the alumni. Candidates for the Deanship are expected to be scholars, particularly with a doctorate, and to have acknowledged expertise in administration, preferably academic administration. The University expects the Dean to ensure that the Faculty maintains its position of pre-eminence both academically and clinically.

Written nominations or applications for the position, accompanied in the latter case by a resume of qualifications and experience and the names of three referees, should be directed to the Chairman of the Search Committee (address below), no later than September 30, 1988.

Professor Charles H. Hollenberg, M.D.
Vice-Provost, Health Sciences
University of Toronto
Room 225, Simcoe Hall
27 King's College Circle
Toronto, Ontario M5S 1A1

In accordance with Canadian government immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. In conformity with the Employment Equity Policy of the University of Toronto, applications are invited from qualified men and women.

THE UNIVERSITY OF BRITISH COLUMBIA FACULTY OF DENTISTRY NOTICE OF VACANCY ORAL PATHOLOGY

Applications are invited for a full-time tenure track position at the Assistant Professor level in Oral Pathology, Department of Oral Medical and Surgical Sciences, University of British Columbia, Vancouver, Canada. The candidate must have completed an accredited graduate program in Oral Pathology and be eligible for specialty certification with the College of Dental Surgeons of British Columbia. Responsibilities include teaching in the undergraduate and post-graduate programs, participation in an active provincial biopsy service in addition to consultative activities in departments of pathology at several teaching hospitals, active research and administrative duties pertaining to teaching, research and service functions. Salary commensurate with qualifications and experience. The position is subject to final budgetary approval. The University of British Columbia is an equal opportunity employer, Canadian Immigration regulations require that this advertisement be directed to Canadian citizens and permanent residents.

Applicants are requested to forward a letter of application and curriculum vitae. In addition they should arrange for three references to be forwarded independently. Deadline for receipt of material is September 30, 1988. The position will be filled as soon as possible following this date. Applications or further enquiries may be directed to:

Dr. David Donaldson, Head
Department of Oral Medical and Surgical Sciences
Faculty of Dentistry
University of British Columbia
2199 Wesbrook Mall
Vancouver, B.C. V6T 1Z7
Telephone: (604) 228-5747

Building a Better Practice

It takes more than bricks and mortar to build a practice. It takes hard work and commitment. You know this. You're working hard each day to make your practice bigger and better. It's not an easy task.

But you don't have to do it alone. CDSPI is here to help you.

Building your practice is a lot easier with the help of someone who is as concerned about your practice and personal growth as you are. We recognize the value of your time and have the resources and experience to assist you, freeing time for you to do what you do best.

We are your service organization, dedicated to providing quality services to the dental profession.

For complete information about the services CDSPI can offer you, call us today!

INFORMATION EXPERTISE COMMITMENT SERVICE



For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario *except* Area Code 807

497-7117 Metro Toronto

This material has been approved by our consultants/brokers and insurers.

TIMES ARE CHANGING — ARE YOU READY?

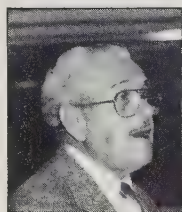
Geriatric Symposium Draws Record Attendance!

A Geriatric Symposium with emphasis on the Clinical Management of the Elderly Dental Patient drew a record attendance in Winnipeg April 21, 22nd. Organized and coordinated by the Continuing Education Division of the Faculty of Dentistry at the University of Manitoba, the Symposium drew an audience of more than 200 from 14 U.S. states and eight Canadian provinces.

The considerable success of the meeting was attributed to the Board of Directors of the American Society for Geriatric Dentistry which held its interim Board meeting in Winnipeg in conjunction with the Symposium. It was the first time in the 23 year history of the 500 member Society that their Board meeting was held outside United States. Seven of the essayists presenting papers were members of the ASGD.

Dr. Saul Kamen, Chief Emeritus of Dental Services, Jewish Institute for Geriatric Care, New Hyde Park, New York, set the theme of the Symposium when he addressed the after-dinner audience with a paper, "What's Different About Geriatric Dentistry." He began by reading a letter which had appeared in the Journal of the American Medical Association. The

letter was a case report presented by a physician to a group of nurses. . .



Dr. Kamen

. . . the patient is a white female who appears her reported age. She neither speaks or comprehends the spoken word; sometimes she babbles incoherently for hours on end. She is disoriented about time, place and person; she does however seem to recognize me and recognizes her own name. I have been meeting with her for the past six months. She shows complete disregard for her personal appearance and makes no effort whatsoever to assist in her own care. She must be fed, clothed and bathed by others. Because she is edentulous, her food must be puréed; because she is incontinent of both urine and stool she must be changed and bathed often.

Her shirt is generally soiled from almost incessant drooling. She does not walk; her sleep pattern is erratic and often she awakens in the middle of the night and her screaming awakens others. Most of the time she is very friendly and happy, however several times a day she becomes quite agitated without apparent cause, —

then she screams loudly until someone comes to comfort her. . .

After the case presentation I asked the nurses how they would feel about taking care of the patient I had just described. They chose words such as frustrated, hopeless, depressed and annoyed to describe how they would feel. I indicated that I would enjoy taking care of her and they would too. The class looked at me in disbelief. I then passed around a picture of the patient — my six month old daughter.

After the laughter had subsided, I asked why it was so much more difficult to care for a 90-year-old than a six-month-old with identical symptoms? We all agreed that it is physically easier to take care of a helpless baby weighing 15 pounds than a helpless adult weighing a 100 pounds. But the answer seemed to go deeper than this. The infant represents new life, hope and almost infinite attention. The demented senior citizen on the other hand represents the end of life with little potential for growth. We need to change our perspective. The aged patient is just as lovable as the child. Those who are ending their lives with the helplessness of old age deserve the same care and attention as those who are beginning their lives with the helplessness of infancy."



Dr. Saul Kamen (left) and Dr. Paul Holm-Pederson, Board Members of the American Society for Geriatric Dentistry, chat during a break at the Geriatric Symposium in Winnipeg. Dr. Kamen was the Theme Speaker at the meeting. Dr. Holm-Pederson is co-author of the comprehensive text "Geriatric Dentistry".

Dr. Kamen continued to inform the audience on the demographics of aging, indicating the similarities between the United States and Canada with their growing numbers of seniors. Dr. Kamen stated there were numerous definitions of aging; the most unreliable was the "age 65" chronology. The definitions that made most sense were the ones related to function. He personally preferred three categories.

1. Age 65-75 — the young old or "Go-Go Elderly" who were functionally capable: often in the labour force and participating in entertainment and cultural activities.
2. Age 75-85 — the older, mature, or "Slow-Go Elderly"; a group who were frail, most often functionally independent, but whose situation could change rapidly.
3. Age 85 plus — the oldest of the old, or "No-Go Elderly"; the cohort that was expanding three times faster than the 65-75 age group and who most often required total care.

In comparing government social benefits between the United States and Canada, Dr. Kamen said the Canadian elderly with their pension benefits and medical-social services appeared much better off than their American counterparts. In United States 25 per cent of all older citizens were at or near the poverty level; even though another 24 per cent had \$5,000 per year more than subsistence needs. Although only 12 per cent of the U.S. population, the elderly used 35 per cent of health care dollars, (very similar to Canada!). Interestingly, the net worth of U.S. seniors was higher than the median.

Addressing the "Iatrogenic Oral Manifestations in the Elderly Patients", Dr. Kamen stated that polypharmaceutical regimens placed the elderly dental patient at higher risk for dental intervention and can lead to significant morbidity and mortality.

Eighty per cent of the elderly have one major chronic disorder and many have two and three; often leading to multi-drug treatment. The elderly with increased fatty tissue that can cause increased half-life of medications; decreased cellular and intercellular fluid, that influences drug concentrations; and decreased renal function which affects clearance, are often at risk with drug treatment. Ninety per cent of all drugs can have a xerostomic effect and this can directly influence the health of oral tissue.

Although it is not the dentist's intent to interfere with physicians' medical treatment, Dr. Kamen said it is the dentist's responsibility to record proper, current medical histories and monitor any untoward effects. No harm was ever done communicating with the patient's physician.

Dr. Kamen emphasized that one of the most prevalent drug induced oral manifestations was tardive dyskinesia. Elderly patients on long term treatment with antipsychotic, antidepressant and neuroleptic drugs can develop oral-facial syndromes. The patients display movements of grimacing and tongue thrusting; repetitive, ritual, rhythmic states of grinding, sucking, and puckering — all of which makes dental treatment difficult, if not impossible.

Asuman Kiyak, PhD, School of Dentistry, University of Washington, Seattle.

"The Impact of Attitudes on Older Persons' Use of Dental Services"



Dr. Asuman Kiyak

Studies of dentist's attitudes have had varied responses but evidence does indicate that as many as 40 per cent of dentists had inaccurate perceptions of the elderly. One 1986 study by Strayer, Di Angelo and Loupe, reported that almost 50 per cent of the dentists found the elderly to be the least satisfying age group to treat. This was consistent with similar studies among medical, social work and law students.

A 1985 survey of 344 Canadian dentists in private practice, by Weiss and colleagues, found that most had little expe-

rience with elderly patients, especially in long-term care facilities. Those who expressed an interest in treating the institutionalized were more favourable in their attitudes and had received some gerontologic education.

Elderly patients' attitudes play an important role in seeking dental services and in their dental care behaviour. A 1987 study found that the majority of the elderly believed nothing could be done to improve their oral health.

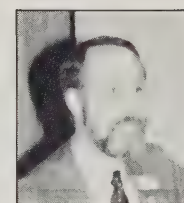
Among dentate elderly, 805 said they were satisfied with the appearance of their teeth.

Another study showed 705 of elderly reported that dentists did not explain their treatment plans clearly, and only 3 per cent of those surveyed had visited their dentist every six months. A 1983 Health Interview survey found 31 per cent of older persons with incomes under \$10,000, as opposed to 65 per cent of those with annual incomes over \$20,000, had seen a dentist in the last two years.

Perceived need, as opposed to objectively assessed need, has emerged in many studies as one of the most accurate predictors of both medical and dental services use. A number of studies have likewise shown that it is neither expense nor fear that determines utilization of dental services for the elderly. The question of perceived need plays a much greater role.

Douglas Berkey, DMD, MPH, MS: University of Colorado.

"Clinical Decision Making For The Geriatric Dental Patient"



Dr. Douglas Berkey

Thorough assessment has been described by experts as the keystone of geriatric medicine and is an integral part of dentistry. It is essential to perform a detailed and accurate medical history.

Older patients demonstrate high levels of chronic disease and polypharmacy is very marked in this age group. Generally speaking, it has been estimated that 15-20 per cent of the ambulatory elderly may have significant symptoms of mental illness.

An assessment of the patient's functional status can be essentially important for the frail older patients. Treatment plan considerations include the ability to maintain adequate oral hygiene and even whether they could insert and remove certain types of prostheses.

Dentists may have to assume an aggressive role in ferreting out useful assessment information. The elderly dental patient volunteers information only up to a certain point, and then powerful inhibitors take over. Many elderly are very hesitant to report health complaints of any type. Consultation with family members may be necessary to confirm the frequency and intensity of dental problems.

The clinical dental examination of the geriatric patient should include emphasis on several different components; xerostomia, both root and coronal caries, periodontal disease, levels of alveolar ridge resorption, prosthesis induced stomatitis, oral cancer, and chewing function. Many of these types of problems — often important, novel, and complex problems — are not spotted and understood routinely.

Barbara Smith; RDH, BSc., MPH; Assistant Professor, Health Ecology, University of Minnesota; Coordinator, Dental Services for Senior Dental Program, Wilder Foundation.
"The Role of the Dental Team"



Barbara Smith

As with all services, the importance of the dental team is recognized, but perhaps even more so with the treatment of the elderly. Very often the elderly require assistance in walking to and from the operatory, and particularly in seating into the dental chair. The proper use of a transfer belt was stressed to assist wheel chair patients.

Modern dental chairs do not always lend themselves well to the elderly and support of pillows may be required in the lumbar region. An adjustable headrest may be adapted for special needs.

Communications with elderly must take into account deficiencies in sight and hearing. Proper reception area/operatory lighting, large size print, speaking in a lower pitched voice, and reduction of background noise, will all enhance understanding and cooperation.

Oral aids for toothbrushing, flossing, and self-examination assist in improved hygiene for those with hand mobility problems such as in arthritic situations. Recalls particularly, should be tailored to the patient's special needs. Fluorides in the form of gels, rinses and topical application need to be selected to decrease prevalence of caries — especially root caries.

Friday afternoon session featured one hour of concurrent seminars. Attendees participated in two topics of their choice

"Prosthodontics for Elderly People"
Dr. Michael MacEntee, Chairman of Prosthodontics, University of British Columbia.



Dr. MacEntee

Geriatric dentistry is no longer thought of as "dentures for the old folks". Many older adults need now, and will require in the future, fixed and removable prostheses. The provision of dentures for the elderly is no simple matter. The difficulty lies in deciding what choices of action one has . . . solutions to the elderly patient's problems can range from the simplistic to the impossible.

"Promoting Appropriate Responses to Oral Symptoms"
Joseph Holtzman, PhD., Research Professor of Gerodontology, University of Colorado.



Dr. Holtzman

Understanding WHY older people seek dental care becomes very important when attempting to design programs for aging populations. Several factors motivate elderly persons, such as the existence of natural teeth and symptoms associated with their perceived needs. Most important is whether the patient believes the dentist can provide the expected relief of the perceived problem.

"The Psychiatry of Old Age"
Dr. Colin Powell, Professor and Head, Section of Geriatric Medicine, St. Boniface Hospital, Winnipeg.

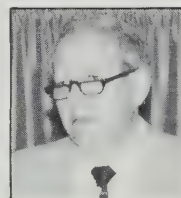


Dr. Powell

Older persons in confused states are becoming an increasing minority. The changes associated with these states create numerous intra-family problems.

The importance of diagnosis was emphasized. The diagnosis of depression is often missed and a dentist may be the first person to recognize the illness as it manifests itself in an oral symptom. Many persons who suffer from confusion states have irreversible dementia for which there is no effective treatment. This creates dental management issues such as oral hygiene as well as drug induced xerostomia.

"Portable Dental Services for the Elderly"
Dr. Richard Shaver
Private Practitioner, Lakewood, Colorado.



Dr. Richard Shaver

First impressions of nursing homes are often of beautiful lobbies, organized nursing stations, bright, well appointed dining rooms and kitchens regularly inspected by health authorities. This is in sharp contrast to the prevalent oral hygiene of the patients where shocking neglect is often the norm. A motivated dentist now has available advanced portable equipment especially designed to provide care to the institution and home bound. A portable practice provides a change of scenery from the five-day-a-week office; it helps to actually alleviate stress reported among dental professionals, by broadening the dentist's perspective of life.

"Experiencing Dental Care — An Older Person's Point of View"
Lynne Mitchell-Pederson, RN, MEd., Clinical Nurse Specialist, Dept. Geriatric Nursing, St. Boniface Hospital, Winnipeg.



L. Mitchell-Pederson

By inflicting "instant" sensory losses and disabilities (glasses were blurred, ears stopped, limbs immobilized), participants are able to experience what an impaired elderly patient contends with on a daily basis. Dental health workers must realize and understand that the elderly can learn, but they often need more time to overcome sensory deficits.

Laypersons give their opinions of the symposium

In order to gain the relevancy of the Symposium from the viewpoint of the "receiver" of dental services — the elderly dental patient — representatives of several Senior Citizen organizations were invited to attend the proceedings as guests.

Maureen Kachmar, Regional Development Director, Manitoba Society of Seniors reports. . .

" . . . as a consumer interested in the health of the elderly, I felt the Symposium addressed dental health problems quite well. I don't feel, at this point, that these needs were met because, at least locally, our community is not yet organized to do so. We were certainly made aware of many concerns and hopefully we can assist by working toward solutions.

"At the Symposium many issues were mentioned, and in some instances, dealt with sufficiently, while others, I felt, required more work. In my opinion, because geriatric dentistry is non-existent in Winnipeg, there is much to be done before all the problems are recognized, researched and solved in the best possible way.

"There were practical solutions offered for some of the difficulties encountered by dentists while working with their elderly patients. It appears as if this information is not encompassed in any given body of literature, but rather has been gleaned through dentists sharing their experiences and frustrations with each other. Perhaps consultation and research will remedy this problem.

"Attitudes of both dentists and seniors toward each other, was one of the Symposium topics. Education, in my opinion, is one way to address this concern. In terms of older individuals, the situation could be improved by having speakers available to talk to groups in senior centres, residences and nursing homes as well as to staff members, family and other caregivers. Information can then be shared as to expectations, fears and new techniques available. Myths, which may determine usage of the service, or lack of it, can be explored and put to rest.

"Dentists, too, have negative attitudes, we are told. Input from people who work with seniors may alleviate this problem to some degree. Added to this could be feedback from seniors themselves. Direct contact does more to promote positive images than anything else.

"The question of finances came up for discussion. We were told that dentists need to educate elderly consumers and

their families as to the actual costs (and benefits) of dental services. Also, because many older consumers have lost their dental plan upon retirement, many individuals hesitate to seek care until a crisis occurs. If some alternatives were available to help low or fixed income seniors, more people might be encouraged to seek dental care.

"My final suggestion is that a committee be established with input from the three groups mentioned previously. A goal might be to develop a type of resource centre with several roles including coordination of resources in the community, establishment of a speakers' bureau, and the maintenance of print and audio-visual material for distribution among seniors and their organizations."

Marjorie E. Hay, Past President, Creative Retirement Manitoba

"There is a high general awareness of symptoms and prevention measures for cancer, heart problems, and other such medical concerns. But who talks about dry mouth? caries? or diseased gums? The need for further education was emphasized — for the dental profession and for the care-givers of the geriatric population. Today's elderly population were themselves raised at a time when "dentures eventually — why not now"? was the general perception. In their senior years, oral health still seems to have a low priority and has not yet been effectively addressed.

"The suggestions and sharing of experience offered by professionals to professionals were basic and practical enough to make sense to me. There could, however, have been a contribution from elderly patients who feel they have grounds for complaint: dental chairs that don't fit arthritic bodies, devices that cause choking, or suspicions that repeated follow-up procedures are really unnecessary. (Actual complaints from some of my peers).

"I felt involved and positive about the way issues were raised and explored. Calls for action came from people who had first documented the needs and then had tried to meet with innovative programs. I was convinced of the need for a special program in geriatric dentistry. I responded throughout the Symposium to comments relating specifically to the need to educate elderly persons themselves and their care-givers about such matters as the effectiveness of oral care practices and the value of regular visits to, or by, the dentist, compared with reaction to crisis. The dissemination of information on these and other issues is long overdue."

Dr. Peter Glynn Assistant Deputy Minister Health Services Promotions Branch Health and Welfare Canada

At the Symposium luncheon Dr. Glynn stated. . .



Dr. Peter Glynn

"The senior's community, the community to which you, through this Symposium are addressing your efforts and concerns, is fast becoming a highly significant segment of the Canadian population. You as health professionals are going to have to learn about the complex process of aging and undoubtedly this will require curriculum changes in your dental faculties to accommodate the training.

"It is very important that we talk to seniors to find out from them their needs and wants," said Dr. Glynn. "I would strongly urge you to go out and I strongly urge you to listen to the concerns of seniors. Then determine how are we going to respond with new programs."

Dr. Glynn made reference to the Minister of Health's initiatives to improve the quality of life for Canada's seniors. Thirty five million dollars will be spent annually to enhance community-based projects and the New Horizons program. Four million dollars per year is to be allocated for research programs on diseases of older adults. Alzheimer's disease and osteoporosis will be a priority.

"Your role," Dr. Glynn stated, "Becomes one of guiding the creation of public policy in order that it will best address the dental requirements of the seniors and accommodate the limitations you experience in the provision of care."

A \$5,000. grant, under terms of the National Health Research and Development Program, Health and Welfare Canada, was received in support of the Symposium. Other generous supporters were; The Canadian Dental Association; Block Drug Company (Canada) Ltd, and The Manitoba Dental Association.

**Arthritis
Research is
Paying Off!**

THE ARTHRITIS SOCIETY

At Teledyne, we're selling something far more important than the Water Pik.



We're selling good dental care. You see, like you, we're dental professionals who care about dentistry. And, of course, while we're interested in selling Water Pik® Dental Systems, we're also interested in promoting dental health. But we need your help.

That's why we've designed a program that lets us work with dentists and hygienists to raise money for the Canadian Fund For Dental Education. We call it the "Partnership Programme".

Here's how it works. We'll send you \$4.00 rebate coupons to give to your patients. For every coupon redeemed, we'll donate \$1.00 to the Canadian Fund for Dental Education. It's that easy.

If you haven't already received your "Partnership Programme" kit, simply fill out the coupon below. In it you'll find information describing our involvement with the Canadian Fund for Dental Education, a supply of an

informative dental care brochure for your office, and a wallet containing \$4.00 rebate coupons. So, please, join us in our effort to promote dental education. Because, as you know, there's a lot more at stake than just the Water Pik.

Yes, please rush me my "Partnership Programme" Kit:

☐ English ☐ French

Name

Address

Postal Code

MAIL TO:
PROFESSIONAL SERVICES
DEPARTMENT

Teledyne Water Pik Canada
82 Carrier Drive
Rexdale, Ontario M9W 5R1

 **TELEDYNE WATER PIK CANADA**

® Registered Trademark of Teledyne Water Pik Canada Ltd.

SMOKELESS TOBACCO AND ORAL DISEASE

A Review

*J.H.P. Main and D.R. Lecavalier DDS, MSc
Department of Oral Pathology
Faculty of Dentistry
University of Toronto*

The enhanced public awareness of health hazards associated with smoking in conjunction with the current vigorous anti-smoking lobby have been largely responsible for the ongoing reduction in smoking that is apparent in North American society. Concomitant with the reduction in smoking there has been a considerable increase in the use of smokeless tobacco products.¹ This appears to be most pronounced among young men at whom advertising promoting a "macho" image has been aimed.^{2,3} Unfortunately the deleterious aspects of smokeless tobacco use are not as widely appreciated as they are for smoking.⁴⁻⁶ In this paper we review the scientific literature on smokeless tobacco in order to discuss the health risks arising from its use as well as to examine the implications of smokeless tobacco within the framework of Canadian public health.

Changing trends in smokeless tobacco use

It has been estimated that anywhere from seven to as many as 12 million Americans have used some form of smokeless tobacco within the past year and that around 30 per cent of these individuals

are below 21 years of age.⁷⁻⁹ Information from the ongoing Bogalusa Heart Study in Louisiana shows that there was a significant increase in the use of chewing tobacco and snuff by young persons between 1977 and 1982.¹⁰ Many of these younger individuals were in primary or secondary school when they began to use these tobacco products. In general young individuals begin to use smokeless tobacco at an earlier age than when they begin smoking.⁴

The typical user is a white male, females rarely indulging.^{9,11} The prevalence of smokeless tobacco use varies markedly depending upon the locale being investigated. Whereas around 11 per cent of high school students in Colorado, Texas and rural North Carolina used smokeless tobacco,^{4,9,11,12} almost 40 per cent of comparable individuals in Arkansas were current users.¹³ Similarly high figures (30-35 per cent) were observed in Western Pennsylvania¹⁴ and in Washington state.⁵

Little is known regarding the extent of smokeless tobacco use in Canada. Data from the 1986 Canadian Labour Force Survey indicate that among non-native males over the age of 15, 0.7 per cent

chew tobacco and 0.4 per cent use snuff.¹⁵ Most of the snuff dippers reside in Western Canada while tobacco chewers are found in both Western and Atlantic provinces. Since approximately 27 per cent of responses were by proxy, these figures are likely to underestimate the actual prevalence of smokeless tobacco use.

Smokeless tobacco use is common among native peoples both in the United States and Canada and this habit is probably of long standing. Of 254 native adolescents studied in Washington state, only 13.4 per cent had never used smokeless tobacco.⁵ Approximately 43 per cent had used smokeless tobacco more than 25 times and 24 per cent were weekly users. Millar and van Rensberg have estimated that 17 per cent of young persons in the Northwest Territories have tried smokeless tobacco and 9 per cent were current users.¹⁶ The vast majority of the users were Inuit or Indian/Metis natives, some being as young as five years of age. Between 10 and 20 per cent of Indian and Metis boys between the ages of five and 19 used chewing tobacco while for Inuit boys in the same age range the prevalence was 15-25 per cent. Similar

values were found for snuff usage. It is interesting that the usual aversion of Caucasian females to smokeless tobacco was less apparent in the Canadian native women and totally absent in the American study. Smokeless tobacco use among native girls occurred predominantly in the Inuit population and then only with snuff.

Smokeless tobacco products

The two major types of smokeless tobacco are snuff and chewing tobacco. Snuff is a cured tobacco which is finely ground to produce dry (Scotch) snuff (less than 10 per cent moisture), moist snuff (up to 50 per cent moisture) or fine-cut tobacco, the latter variety generally being considered a form of moist snuff. Additives and flavouring agents may be added during processing. It is the enhanced sales of moist snuff, in part the result of expensive advertising campaigns, which have played a prominent role in the revival of interest in the smokeless tobacco market.¹⁷ 'Snuff dipping' consists of taking a small amount of snuff between the thumb and the forefinger and placing this 'pinch' between the gingiva and either the lip or the buccal mucosa. Once in place it can be left for a few minutes or as much longer as desired. The practice of inhaling snuff through the nose is infrequently practiced in modern times although there are still some South American Indian tribes where this remains the predominant means of intake.¹⁸ Snuff has recently been made available in small, low nicotine 'tea bag'-like packets.^{19,20} There has been much advertising of these products by the tobacco industry in areas of the United States where snuff dipping has not been a common practice in the past, such as in the urban northeast states.

Chewing tobacco can be obtained as plug, loose-leaf and twist or roll tobacco. Plug tobacco is made from enriched tobacco leaves which are wrapped in fine tobacco and pressed into flat bars or rolls. Loose-leaf tobacco is formed from fermented cigar leaf tobacco which is not compressed while twist or roll tobacco is composed of cured, flavoured leaves which have been twisted into strands and dried. A 'chaw' or 'quid' of chewing tobacco is placed in the buccal vestibule where it can be held and chewed intermittently over several hours. The saliva mixed with tobacco extract is usually expectorated.

History

Tobacco plant cultivation is of considerable antiquity. It is thought to have originated on the mainland between North

and South America over 7,000 years ago.²¹ Chewing, snuffing and smoking were found by Europeans to be widespread among American Indians when the Americas were first explored.²² Following this discovery, tobacco was both grown and imported by the Europeans where it was touted for its medicinal properties. Pipe smoking was the initial form of tobacco use in Europe but by the seventeenth century snuff was widely known and during much of the seventeenth and eighteenth centuries it was the preferred mode of tobacco usage particularly in Britain.¹⁷ It was during this period (1761) that the first cases of nasal cancer associated with snuff use were reported.²³ From 1800 to 1913 American colonists, perhaps anxious to avoid English habits, adopted the habit of chewing rather than snuffing and this practice became known as the 'American habit'.¹⁷ During this period smokeless tobacco had become something of a medical and dental panacea as is evident from the advertisements of the period.²⁴ The popularity of chewing tobacco continued until the start of the twentieth century when it became apparent that the widespread use of spittoons could result in the spread of diseases such as tuberculosis.²² Simultaneously mass produced cigarettes were becoming readily available and were soon largely to replace smokeless tobacco in most parts of the world.

Chemistry

Three principal types of chemical carcinogens are found in tobacco. These include polynuclear aromatic hydrocarbons (typically benzo[a]pyrene), Polonium-210 and N-nitrosamines.¹ Benzo[a]pyrene is present in trace amounts up to 63 ppb (parts per billion).²⁵ Both benzo[a]pyrene and one of its metabolites are capable of inducing both oral and perioral skin cancer in experimental animals.^{26,27} Polonium-210 is a radioisotope that emits alpha particles and originates from certain of the phosphate fertilizers used in tobacco cultivation. Between 0.16 and 1.22 pCi/g (picoCuries per gram) dry snuff was detected in the five brands of snuff examined by Hoffmann and co-workers.²⁵ Trace quantities of Radium-226 and Lead-210 have also been noted in smokeless tobacco.²¹

Most of the attention regarding carcinogenic agents in smokeless tobacco has focused on the presence of N-nitrosamines.²⁸ These include well known potent animal carcinogens such as N-nitrosodimethylamine and N-nitrosomorpholine. Tobacco-specific N-nitrosamines are present at levels between

5900 and 289,000 ppb depending upon the brand of smokeless tobacco examined.^{25,29-31} N-nitrosamine levels in smokeless tobacco are influenced both by the type of production and the method of packaging.^{25,30,31} N-nitrosamines in smokeless tobacco products are readily extracted into saliva,^{28,31} and this is enhanced under alkaline conditions.³²

The experimental literature is replete with examples of benign and malignant tumours induced by N-nitrosamines²⁸ however in the overwhelming majority of cases the lesions have occurred outside of the oral cavity. Most commonly the N-nitrosamines induce neoplasms of nasal mucosa, liver, esophagus and lung^{28,33} and in only isolated reports have certain N-nitrosamines been shown to induce oral cavity tumours.^{34,35} The results should not be taken to support the argument that N-nitrosamines are not carcinogenic in the mouth but rather may indicate that the organ specificity for N-nitrosamine carcinogenesis in experimental animals differs from that in man.²⁸

Smokeless tobacco and oral cancer

There is a good deal of concern in health care communities regarding the health threat posed by the use of smokeless tobacco especially among younger individuals.^{8,20,36-38} The most frequently cited research is from a case-control study of 232 women from North Carolina with oral or pharyngeal cancer.³⁹ One hundred and seven of the women were chronic snuff users and 100 smoked tobacco. The relative risk of developing oral cancer in the snuff dippers was calculated to be 4.2 times greater than in control patients who did not use smokeless tobacco. When cancers of the gingiva and buccal mucosa were considered separately, the relative risk rose to 47.5 in snuff dippers who had had the habit for over 50 years. The significance of these findings is somewhat weakened by the fact that the information regarding tobacco and alcohol use was obtained from relatives and/or friends in 162 of the 232 cases and in such data collecting there is always a tendency to underestimate alcohol consumption. Winn et al.³⁹ found that in women who had smoked more than 20 cigarettes and drank more than 1.6 ounces of alcohol daily for 20 to 40 years but who did not use snuff, the relative risk for oral or pharyngeal cancer rose to ten times control values.

Rosenfeld and Callaway⁴⁰ have reported on 175 individuals from Tennessee with gingivo-buccal cancer of whom 143 had a long history of snuff dipping while Wilkins

and Vogler⁴¹ reported on a further 79 persons of both sexes from Georgia who had gingival cancer and of whom 43 were snuff dippers or tobacco chewers. More recently Stockwell and Lyman⁴² have reported an increased risk for cancer of the oral cavity, pharynx and salivary glands in smokeless tobacco users. Unfortunately many of the patients studied were probably users of multiple tobacco products and therefore these findings must be interpreted cautiously.

Clinical studies have not been unanimous in supporting the hypothesis that smokeless tobacco is a direct cause of oral cancer. Smith et al.⁴³ reported on long term studies of 15,000 snuff dippers of whom 1751 had oral lesions that were investigated cytologically and 157 of which were subsequently biopsied. None of the lesions investigated showed either dysplasia or carcinoma initially or during a five year follow-up of 75 per cent of these patients. In a separate study of 500 snuff users, the same authors⁴³ reported finding 12 dysplasias and two carcinomas. The patient population had a female to male ratio of 3:1, an average age of 62 years and an average period of 47 years of snuff use. Frithiof et al.⁴⁴ were unable to detect either severe dysplasia or invasive carcinoma in the 21 Swedish snuff users they examined and similar findings were reported in a larger Swedish study of 114 snuff users.⁴⁵ Pindborg and his colleagues were also unable to demonstrate any ominous epithelial changes in their studies of 44 Danish snuff users although one of their patients eventually developed a carcinoma of the mandibular alveolar ridge.^{46,47}

Both squamous^{40,48,49} and verrucous^{49,50} cancers have been associated with the use of smokeless tobacco. Several cases of verrucous carcinoma have been reported from Eastern Canada.⁴⁵ Typically the patients in the above studies were elderly individuals with a very long history of snuff dipping or tobacco chewing. In the majority of cases the cancer developed at the site where the tobacco product was customarily held.⁵² Taken together these clinical studies suggest that if malignant transformation of oral tissues results from the use of smokeless tobacco, it occurs at low rates and with long latencies. These features have lead several authors to encourage the use of smokeless tobacco as an alternative to smoking in individuals who are unable to break their tobacco habit.^{53,54} If the usage of smokeless tobacco among native peoples in the Canadian northwest is as high in adults as was found in chil-

dren by Miller and van Rensberg,¹⁶ and if this is a habit that has been prevalent among native Americans for many years as is generally believed, then it might be anticipated that there should be a high incidence of oral cancers in these areas. However only four cases of oral cancer were recorded by Statistics Canada in the Yukon and Northwest Territories in 1982, the most recent year for which figures are available, and this low incidence throws considerable doubt on the hypothesis.

Experimental studies with smokeless tobacco

The experimental evidence linking smokeless tobacco to oral cancer is tenuous. Daily placement of chewing tobacco or snuff into the buccal pouches of hamsters over twenty week periods did not produce significant pathologic changes in the adjacent mucosa but did lead to an increase in the number of Langerhans' cells.^{55,56} Swedish workers have developed a system for the long term treatment of rats with smokeless tobacco.⁵⁷ Despite daily treatments over periods up to 22 months, there were very few cases of significant dysplasia and only one squamous cell carcinoma.⁵⁸ With only one tumour, it is impossible to know whether the lesion was spontaneous or tobacco induced. Smith and his co-workers were also unable to induce oral lesions in 12 Rhesus monkeys exposed to snuff over a seven year period.⁴³ Homberger failed to produce tumours in hamsters exposed to snuff by insufflation to the floor of the mouth for up to a year.²⁶ Similarly Durban and Herrold⁵⁹ obtained no tumours in hamsters which had tobacco and lime implanted in the cheek.

Recently a higher incidence of dysplasia and two carcinomas were induced when smokeless tobacco was tested in conjunction with a Herpes Simplex Virus (HSV) infection in rats.⁶⁰ These findings are supported by the work of Park et al. in the hamster cheek pouch who found epithelial dysplasia but no tumours.^{61,62} It has since been demonstrated that smokeless tobacco extracts can inhibit the replication of both the Type 1 and Type 2 HSV.^{63,64} These findings suggest that smokeless tobacco and HSV may act synergistically to induce malignant transformation of the oral epithelium. However it has to be said that in spite of much experimental work over the last 30 years, the papers cited above and others have only shown smokeless tobacco induced malignant transformation in two laboratory animals and these in association with HSV infection.

Other changes associated with smokeless tobacco

Whereas oral cancer is unquestionably the most serious health risk associated with the use of smokeless tobacco, a number of other medical and dental effects have been documented.^{7,8,65} Smokeless tobacco can produce halitosis, staining of both teeth and composite restorations as well as a reduction in taste and smell acuity.⁶⁵ It has been found to cause gingival recession¹¹ but this may require the presence of preexisting gingivitis.⁶⁶ Evidence of cervical erosion remains anecdotal¹¹ and there is no good evidence that smokeless tobacco increases the incidence of caries or is damaging to salivary tissue.

Despite an earlier report to the contrary,⁴³ it is now clear that the nicotine extracted from smokeless tobacco can transiently increase both systolic and diastolic blood pressures along with the heart rate.⁶⁷ Nicotine levels in the blood rise rapidly in snuff users⁵³ and are known to act by inducing catecholamine release from both the adrenal medulla and cardiac chromaffin tissue.⁶⁸ Smokeless tobacco contains a wide range of salt concentrations and this may provide a potential risk to cardiac patients on salt restricted diets.⁶⁹

Smokeless tobacco, like cigarettes, has addictive properties^{7,8} and this is reflected in the high urinary nicotine excretion rates seen in long term snuff users.⁷⁰

Pathological changes associated with smokeless tobacco

With chronic smokeless tobacco use a progression of changes can be observed in the oral mucosa at the site where the pinch or quid is routinely held. Initially the oral mucosa exhibits a wrinkled appearance without changes in colour or texture. These areas eventually develop a white or even a yellow-brown colour and the tissues show obvious thickening. No sharp demarcation between lesional and normal tissues is obvious. With long term use the wrinkling and thickening of the mucosa becomes more prominent and deep, red furrows may develop (**Figure 1**). These more extensive lesions have been described predominantly in Scandinavian adults who were long term snuff dippers^{45,46,71} but were not seen in the younger North American population examined by Greer and Poulson.¹¹ Cancers that have been reported in sites where snuff or chewing tobacco has been habitually held have generally been exophytic and sometimes ulcerated.

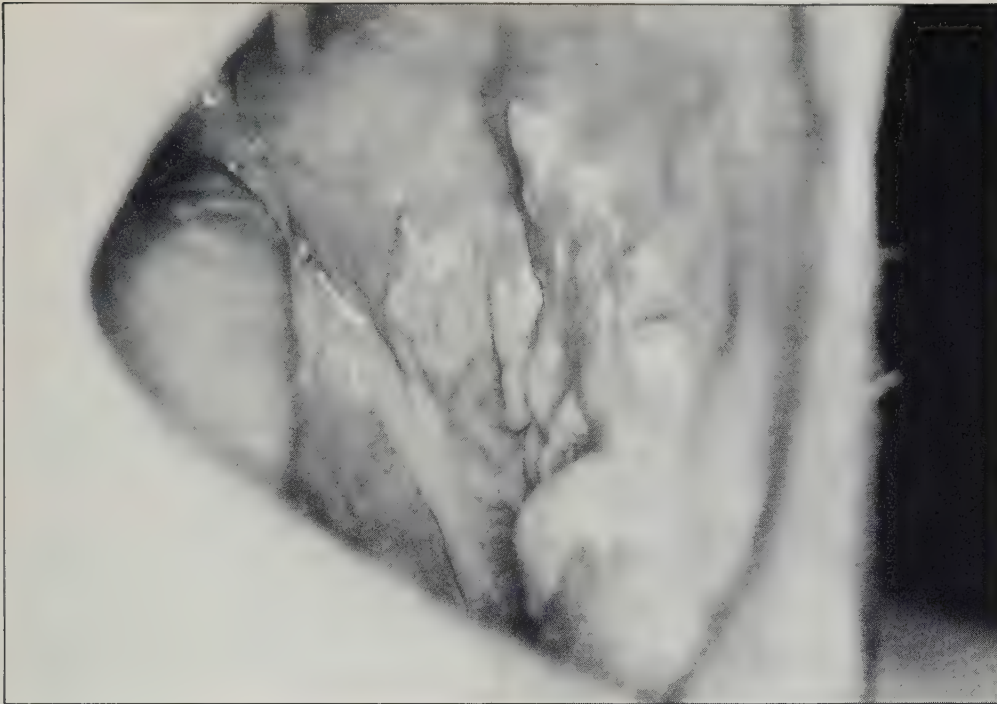


Figure 1. Changes in the buccal mucosa of a 72 year old man who had chewed tobacco for 55 years, always holding the quid in this area. On biopsy, no dysplasia was found.

Characteristic histopathological changes in smokeless tobacco lesions have been described by several investigators.^{11,45,47,71,72} The epithelium is acanthotic and usually hyperparakeratotic. In some cases studied the keratinized layers were seen to have a peculiar vacuolated appearance which was thought to be related to the alkalinity of European snuff.⁴⁷ The epithelium often has a wavy appearance and this may be a reflection of the wrinkling seen clinically. Hyperplasia of the epithelium with club-shaped rete ridges was also a common finding but did not appear to correlate with the clinical severity of the lesion.⁴⁵ Epithelial dysplasia has been a rare finding and when present was usually mild. The underlying connective tissue frequently displays a chronic inflammatory infiltrate of varying severity and in more advanced lesions Hirsch et al. have reported finding sialadenitis with acinar degeneration of minor salivary glands.⁷¹ Unusual band-like eosinophilic deposits have been described in the submucosa but numerous histochemical investigations have failed to elucidate the nature of this material.⁷²

Summary of health risks due to smokeless tobacco usage

There is no doubt that use of smokeless tobacco is addictive and that it causes an increase in blood pressure and heart rate. It may also cause a very mild form of gingival recession.

The evidence that oral use of snuff is carcinogenic to the oral mucosa in man is not entirely conclusive and is largely based on case studies. The evidence that chewing tobacco is carcinogenic to the oral mucosa is even less well substantiated.

However a Working Group of the International Agency for Research on Cancer,²¹ a World Health Organization body, concluded after an exhaustive review of the available evidence that:

1. There is *sufficient* evidence that oral use of snuff is carcinogenic to humans.
2. There is *limited* evidence that chewing tobacco is carcinogenic to humans.
3. There is *inadequate* evidence that the nasal use of snuff is carcinogenic to humans.

In contrast to the above conclusions, there is abundant evidence that the oral use of tobacco mixed with lime and sometimes with other substances such as betel nut, as is widely practised in India, is carcinogenic to humans.²¹

The present scientific position in regard to the basic question as to whether or not smokeless tobacco is carcinogenic to oral mucosa is illustrated well in the submissions made to a Committee of the U.S. Congress in 1985. While some eminent scientists stated that they believed that there was sufficient evidence to enable a positive conclusion to be made, equally distinguished scientists came to the opposite conclusion.

Patient management

In patients who can discontinue the habit, and this course should always be advised, the involved mucosa will usually revert to normal within a month or so.^{44,73} In regular long term users it is important that lesions be biopsied to rule out dysplasia or carcinoma and that these patients be followed on a regular basis. It may also be worthwhile to advise persistent users to vary the location in the mouth where they place their tobacco. Oral hygiene should be excellent if gingival recession is to be avoided. For an individual who is addicted to tobacco and is determined to continue its use in one form or another, the present evidence suggests that smokeless tobacco carries considerably less health risk than smoking. The use of nicotine gum as a tobacco substitute is another option open to these individuals.⁷⁴

Consumption of smokeless tobacco

Estimates of smokeless tobacco consumption are based primarily on sales and production levels. In the U.S.A. consumption of smokeless tobacco products began to rise in the early 1970s and have only recently begun to plateau.¹ Most of this increase resulted from a 55 per cent increase in the sales of moist snuff. By contrast, consumption levels in Canada have been declining steadily since 1980.⁷⁵ In 1986 there was 649 tonnes of smokeless tobacco consumed in Canada with this representing slightly more than one per cent of all tobacco products.⁷⁵ Approximately 85 per cent of the smokeless tobacco consumed consists of moist snuff. It should not be forgotten however that this yearly consumption figure represents almost 15 million tins of snuff (40 grams per tin).

Legislation

In the U.S.A. the Comprehensive Smokeless Tobacco and Health Education Act of 1986 bans radio and television advertising of smokeless tobacco products and requires that warning labels be placed on these products.⁷⁶

The Canadian government has been slower in implementing controls on the advertising and sales of smokeless tobacco products. However Bill C-51, The Tobacco Production and Control Act, has now been passed, which will place a ban on all tobacco advertising and require rotating warning labels on all tobacco products.⁷⁷

Acknowledgements

The authors wish to thank Dr. Lynn Koslowski (Addiction Research Founda-

tion), Wayne Millar (Health Services Promotion Branch, Health and Welfare Canada) and Jim Peterson (Health Protection Officer, Northwest Territories) for their informative discussions. We also wish to thank Wayne Millar for sending us unpublished information on regional smokeless tobacco consumption trends. △

AUTHORS: Dr. J.H.P. Main is Professor and Head, Department of Oral Pathology, Faculty of Dentistry, University of Toronto. Dr. Denis Lecavalier is the Senior Resident in Oral Pathology.

References

- Connolly, G.N., Winn, D.M., Hecht, S.S., Henningfield, J.E., Walker, B. & Hoffmann, D. *The Reemergence of Smokeless Tobacco*. New Engl. J. Med. 314: 1020-1027, 1986.
- Koop, C.E. *The Campaign Against Smokeless Tobacco*. New Engl. J. Med. 314: 1042-1044, 1986.
- Gifford-Jones, W. *Macho Athletes Glamorize Ills of Smokeless Tobacco*. Toronto Globe and Mail, June 2, 1987.
- Schaefer, S.D., Henderson, A.H., Glover, E.B. & Christen, A.G. *Patterns of Use and Incidence of Smokeless Tobacco Consumption in School-age Children*. Arch. Otolaryngol. 111: 639-642, 1985.
- Schinke, S.P., Gilchrist, L.D., Schilling, R.F., Walker, R.D., Locklear, V.S., & Kitajima, E. *Smokeless Tobacco Use Among Native American Adolescents*. New Engl. J. Med. 314: 1051-1052, 1986.
- Schinke, S.P., Gilchrist, L.D., Schilling, R.F., & Senechal, V.A. *Smoking and Smokeless Tobacco Use Among Adolescents: Trends and Intervention Results*. Public Health Reports 101: 373-378, 1986.
- National Institutes of Health Consensus Development Conference Statement: *Health Implications of Smokeless Tobacco Use*. January 13-15, 1986. Public Health Rep 101: 349-354, 1986.
- Cullen, J.W., Blot, W., Henningfield, J., Boyd, G., Mecklenburg, R., & Massey, M.M. *Health Consequences of Using Smokeless Tobacco: Summary of the Advisory Committee's Report to the Surgeon General*. Public Health Reports 101: 355-373, 1986.
- Poulson, T.C., Lindenmuth, J.E. & Greer, R.O. *A Comparison of the Use of Smokeless Tobacco in Rural and Urban Teenagers*. CA 34: 248-261, 1984.
- Hunter, S.M., Croft, J.B., Burke, G.L., Parker, F.C., Webber, L.S., & Berenson, G.S. *Longitudinal Patterns of Cigarette Smoking and Smokeless Tobacco Use in Youth: The Bogalusa Heart Study*. Am. J. Public Health 76: 193-195, 1986.
- Greer, R.O. & Poulson, T.C. *Oral Tissue Alterations Associated with the Use of Smokeless Tobacco by Teen-agers. Part 1. Clinical Findings*. Oral Surg. 56: 275-284, 1983.
- Dignan, M., Block, G., Steckler, A., Howard, G., & Cosby, M. *Locus of Control and Smokeless Tobacco Use Among Adolescents*. Adolescence 21: 377-381, 1986.
- Marty, P.J., McDermott, R.J., & Williams, T. *Patterns of Smokeless Tobacco Use in a Population of High School Students*. Am. J. Public Health 76: 190-192, 1986.
- Guggenheimer, J., Zullo, T.G., Kruper, D.C. & Verbin, R.S. *Changing Trends of Tobacco Use in a Teenage Population in Western Pennsylvania*. Am. J. Public Health 76: 196-197, 1986.
- Millar, W.J., personal communication.
- Millar, W.J. & van Rensberg, S. *Use of Chewing Tobacco and Snuff by Students in the Northwest Territories 1982*. Chronic Dis. Canada 4: 54-56, 1984.
- Dandoy, S., Edwards, G. & Lindsay, G. *Smokeless Tobacco — An Overview for Physicians*. West. J. Med. 145: 111-113, 1986.
- De Smet, P.A.G.M. *A Multidisciplinary Overview of Intoxicating Snuff Rituals in the Western Hemisphere*. J. Ethnopharmacol. 13: 3-49, 1985.
- Darbyshire, P. *Something to Chew On*. Nursing Times, June 11, 1986.
- Editorial. *Oral Snuff: A Preventable Carcinogenic Hazard*. Lancet 1: 198-200, 1986.
- IARC Monograph. *Tobacco Habits Other than Smoking; Betel-Quid and Areca-Nut Chewing; and Some Related Nitrosamines*. IARC 37: 1-136, 1985.
- Christen, A.G., Swanson, B.Z., Glover, E.D. & Henderson, A.H. *Smokeless Tobacco: the Folklore and Social History of Snuffing, Sneezing, Dipping, and Chewing*. JADA 105: 821-829, 1982.
- Redmond, D.E. *Tobacco and Cancer: The First Clinical Report, 1761*. New Engl. J. Med 282: 18-23, 1970.
- Christen, A.G. & Swanson, B.Z. *Orally Used Smokeless Tobacco as Advertised in the Metamorphic Trade Cards of 1870-1900*. Bull. Hist. Dent. 31: 82-86, 1983.
- Hoffman, D., Harley, N.H., Fisenne, I., Adams, J.D. & Brunnemann, K.D. *Carcinogenic Agents in Snuff*. JNCI 76: 435-37, 1986.
- Homburger, F. *Mechanical Irritation, Polycyclic Hydrocarbons, and Snuff*. Arch. Pathol. 91: 411-417, 1971.
- Miller, E. *Some Current Perspectives on Chemical Carcinogenesis in Humans and Experimental Animals: Presidential Address*. Cancer Res. 38: 1479-1496, 1978.
- Hoffman, D. & Hecht, S.S. *Nicotine-derived N-nitrosamines and Tobacco-related Cancer: Current Status and Future Directions*. Cancer Res 45: 935-44, 1985.
- Brunnemann, K.D., Genoble, L. & Hoffman, D. *N-Nitrosamines in Chewing Tobacco: An International Comparison*. J. Agric. Food Chem. 33: 1178, 1985.
- Brunnemann, K.D., Scott, J.C. & Hoffman, D. *N-Nitrosomorpholine and Other Volatile N-nitrosamines in Snuff Tobacco*. Carcinogenesis 3: 693, 1982.
- Hoffmann, D. & Adams, J.D. *Carcinogenic Tobacco-specific N-nitrosamines in Snuff and in the Saliva of Snuff Dippers*. Cancer Res. 41: 4305-08, 1981.
- Bhide, S.V., Nair, U.J. & Nair, J. *N-Nitrosamines in the Saliva of Tobacco Chewers or Masheri Users*. Food Chem. Toxicol. 24: 293-97, 1986.
- Hecht, S.S., Chen, C.B., Ohmori, T. & Hoffmann, D. *Comparative Carcinogenicity in F344 Rats of the Tobacco-specific Nitrosamines, N'-Nitrosomorpholine and 4-(N-methyl-N-nitrosamino)-1-(3-pyridyl)-1-butanone*. Cancer Res. 40: 298-302, 1980.
- Pour, P., Althoff, J. & Nagel, D. *Induction of Epithelial Neoplasms by Local Application of N-Nitrosobis (2-hydroxypropyl) amine and N-nitrosobis (2-acetoxypropyl) amine*. Cancer Lett. 3: 109-113, 1977.
- Wenke, G., Rivenson, A. & Hoffmann, D. *A Study of Betel Quid Carcinogenesis. 3. 3-(Methylnitrosamino)-propionitrile, A Powerful Carcinogen in F344 Rats*. Carcinogenesis 5: 1137-40, 1984.
- Bailey, B.J. *We Must Stop Selling Cancer to Our Children*. Arch. Otolaryngol. 111: 637-638, 1985.
- Harrison, D.F.N. *Dangers of Snuff, Both "Wet" and "Dry"*. Br. Med. J. 293: 405-406, 1986.
- News Item. *Ban is Urged on Tobacco for Chewing*. Toronto Globe and Mail, June 4, 1987.
- Winn, D.M., Blot, W.J., Shy, C.M., Pickle, L.W., Toledo, A., & Fraumeni, J.F. *Snuff Dipping and Oral Cancer Among Women in the Southern United States*. New Engl. J. Med. 304: 745-749, 1981.
- Rosenfeld, L. & Callaway, J. *Snuff Dipper's Cancer*. Am. J. Surg. 106: 840-844, 1963.
- Wilkins, S.A. & Vogler, W.R. *Cancer of the Gingiva*. Surg. Gynecol. Obst. 105: 145-152, 1957.
- Stockwell, H.G. & Lyman, G.H. *Impact of Smoking and Smokeless Tobacco on the Risk of Cancer in the Head and Neck*. Head Neck Surg. 9: 104-110, 1986.
- Smith, J.F., Mincer, H.A., Hopkins, K., & Bell, J. *Snuff-Dipper's Lesion. A Cytological and Pathological Study in a Large Population*. Arch. Otolaryngol. 92: 450-456, 1970.
- Frithiof, L., Anneroth, G., Lasso, U. & Sederholm, C. *The Snuff-Induced Lesion. A Clinical and Morphological Study of a Swedish Material*. Acta Odontol. Scand. 41: 53-64, 1983.
- Axell, T., Mornstad, H. & Sundstrom, B. *The Relation of the Clinical Picture to the Histopathology of Snuff Dipper's Lesions in a Swedish Population*. J. Oral Pathol. 5: 229-236, 1976.
- Roed-Petersen, B. & Pindborg, J.J. *A Study of Danish Snuff-Induced Oral Leukoplakias*. J. Oral Pathol. 2: 301-313, 1973.
- Pindborg, J.J., Reibel, J., Roed-Petersen, B., & Mehta, F.S. *Tobacco-Induced Changes in Oral Leukoplakic Epithelium*. Cancer 45: 2330-2336, 1980.
- Friedell, H.L. & Rosenthal, L.M. *The Etiologic Role of Chewing Tobacco in Cancer of the Mouth*. JAMA 116: 2130-2135, 1941.
- Sundström, B., Mornstad, H. & Axell, T. *Oral Carcinomas Associated with Snuff Dipping*. J. Oral Pathol. 11: 245-251, 1982.
- Ackerman, L.V. *Verrucous Carcinoma in the Oral Cavity*. Surgery 23: 670-678, 1948.
- Sorger, K. & Myrden, J.A. *Verrucous Carcinoma of the Buccal Mucosa in Tobacco-Chewers*. Can. Med. Assoc. J. 83: 1413-1417, 1960.
- Baden, E. *Prevention of Cancer of the Oral Cavity and Pharynx*. CA 37: 49-62, 1987.
- Russell, M.A.H., Jarvis, M.J. & Feyerabend, C. *A New Age for Snuff?*. Lancet 1: 474-475, 1980.
- Kirkland, L.R. *The Nonsmoking Uses of Tobacco*. New Engl. J. Med. 303: 165, 1980.
- Antoniades, D., Niukian, K., Schwartz, J., & Shklar, G. *Effects of Smokeless Tobacco on the Immune System of Syrian Hamsters*. J. Oral Med. 39: 136-141, 1984.
- Shklar, G., Niukian, K., Hassan, M., & Herbosa, E.G. *Effects of Smokeless Tobacco and Snuff on Oral Mucosa of Experimental Animals*. J. Oral Maxillofac. Surg. 43: 80-86, 1985.
- Hirsch, J.-M. & Thilander, H. *Snuff-induced*

Lesions of the Oral Mucosa — an Experimental Model in the Rat. J. Oral Pathol. 10: 342-353, 1981.

58. Hirsch, J.-M. & Johansson, S.L. *Effect of Long Term Application of Snuff on the Oral Mucosa: an Experimental Study in the Rat.* J. Oral Pathol. 12: 187-198, 1983.

59. Dunham, L.J. & Herrold, K.M. *Failure to Produce Tumors in the Hamster Cheek Pouch by Exposure to Ingredients of Betel Quid: Histopathologic Changes in the Pouch and Other Organs by Exposure to Known Carcinogens.* JNCI 29: 1047-67, 1962.

60. Hirsch, J.-M., Johansson, S.L. & Vahlne, A. *Effect of Snuff and Herpes Simplex Virus-1 on Rat Oral Mucosa: Possible Associations with the Development of Squamous Cell Carcinoma.* J. Oral Pathol. 13: 52-62, 1984.

61. Park N.-H., Herbosa, E.G., & Shklar, G. *Experimental Development of Herpes Simplex Virus Infection in Hamster Buccal Pouch.* Oral Surg. 59: 159-166, 1985.

62. Park N.-H., Herbosa, E.G., Niukian, K. & Shklar, G. *Combined Effect of Herpes Simplex Virus and Tobacco on the Histopathologic Changes in Lips of Mice.* Oral Surg. 59: 154-158, 1985.

63. Hirsch, J.-M., Svennerholm, B. & Vahlne, A. *Inhibition of Herpes Virus Replication by Tobacco Extracts.* Cancer Res. 44: 1991-1997, 1984.

64. Stich, J.E., Li, K.K., Chun, Y.-S., Weiss, R. & Park, N.-H. *Effect of Smokeless Tobacco on the Replication of Herpes Simplex Virus in vitro and on Production of Viral Lesions in Hamster Cheek Pouch.* Arch. Oral Biol. 32: 291-6, 1987.

65. Belanger, G.K. & Pulson, T.C. *Smokeless Tobacco: a Potential Health Hazard for Children.* Pediat. Dent. 5: 266-269, 1983.

66. Offenbacher, S. & Weathers, D.R. *Effects of Smokeless Tobacco on the Periodontal, Mucosal and Caries Status of Adolescent Males.* J. Oral Pathol. 14: 169-181, 1985.

67. Wells, D.G. & Rustick J. *Hypertension from Smokeless Tobacco.* Anesthesiology 65: 339, 1986.

68. Squier, C.A. *Smokeless Tobacco and Oral Cancer: A Cause for Concern?* CA 34: 242-247, 1984.

69. Hampson, N.B. *Smokeless is Not Saltless.* New Engl. J. Med. 312: 919-920, 1985.

70. Palladino, G., Adams, J.D., Brunnemann, K.D., Haley, N.J., & Hoffmann, D. *Snuff-dipping in College Students: A Clinical Profile.* Milit. Med. 151: 342-346, 1986.

71. Hirsch, J.-M., Heyden, G. & Thilander, H. A *Clinical, Histomorphological and Histochemical Study on Snuff-induced Lesions of Varying Severity.* J. Oral Pathol. 11: 387-398, 1982.

72. Archard, H.O. & Tarpley, T.M. *Clinicopathologic and Histochemical Characterization of Submucosal Deposits in Snuff Dipper's Keratosis.* J. Oral Pathol. 1: 3-11, 1972.

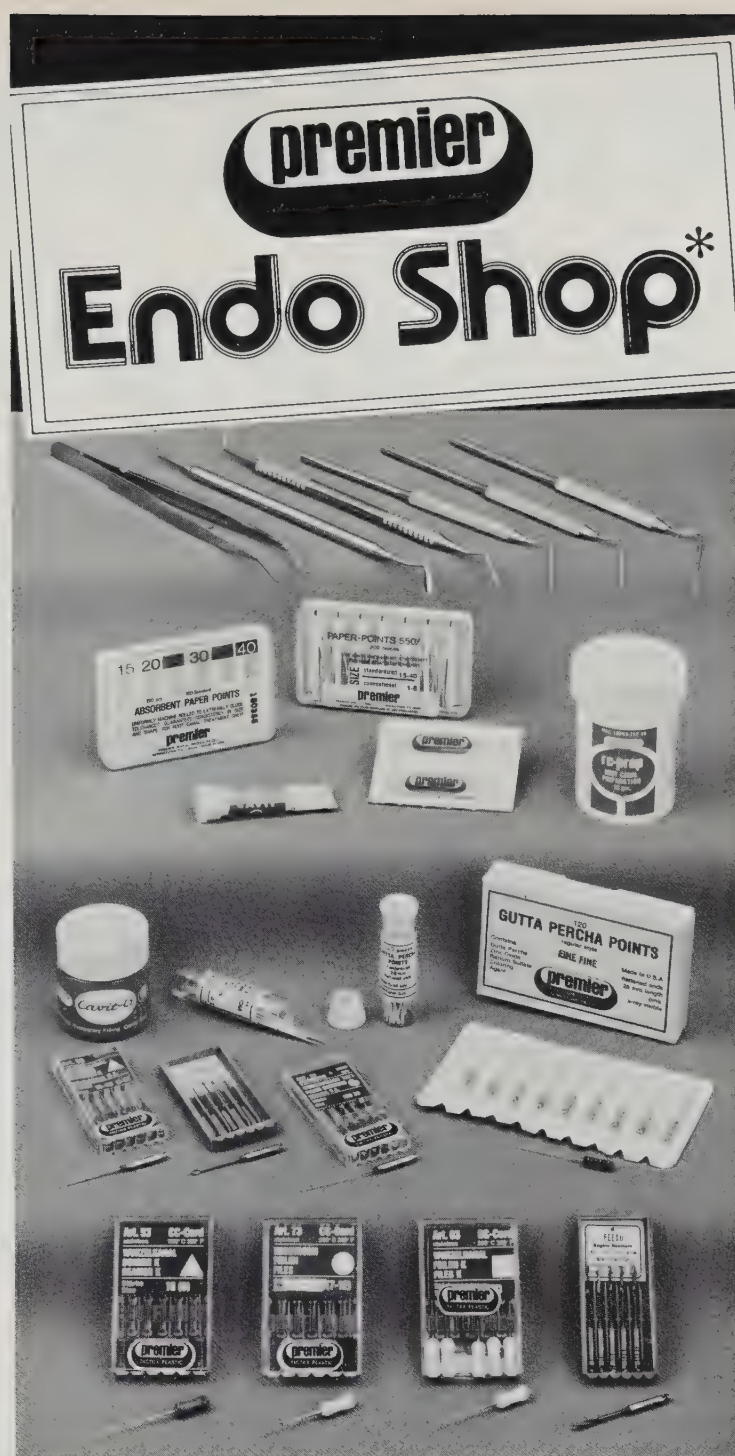
73. Giunta, J.L. & Connolly, G. *The Reversibility of Leukoplakia Caused by Smokeless Tobacco.* JADA 113: 50-52, 1986.

74. Hughes, J.R. & Miller, S.A. *Nicotine Gum to Help Stop Smoking.* JAMA 252: 2855-2858, 1984.

75. Rogers, B. & Collishaw, N.E. *Trends in Canadian Tobacco Consumption 1980-1985.* Chronic Dis. Canada 7: 26-27, 1986.

76. Editor's Note. *Comprehensive Smokeless Tobacco Health Education Act of 1986.* CA 36: 316, 1986.

77. Collishaw, N., Personal Communication.



***ONE STOP ENDO SHOP**
for
SERVICE
RELIABILITY
INNOVATION

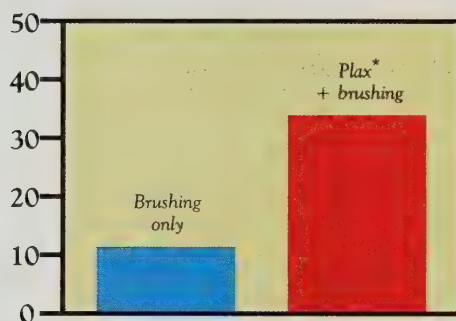
A full line available
through your dealer.

premier Dental Products Company
P.O. Box 111, Norristown, PA 19404 - USA
Scarborough, ONT. M1W 3K5 - CANADA

Introducing Plax*. T in home dental ca

The age-old problem of plaque removal has a new solution. Plax*. The only dental rinse designed specifically to remove plaque.

Removes 3 times more plaque than just brushing.¹



In hard-to-brush areas, the improvement over regular brushing was even more dramatic with Plax*.

Formulated from trusted ingredients.

Plax* is considered to be exceptionally safe even in "exaggerated use" circumstances.² When test subjects greatly exceeded its recommended use,[†] there were no signs of tissue sensitivity or damage to tooth enamel.²

An archaic Middle Eastern toothbrush, the *siwak* (or *miswak*) is made from a water-soaked twig of the *Salvadora persica* tree. The *siwak*'s inherent benefits to the teeth and gums were first recognized by Muhammad who decreed its ritual use to all Muslims.

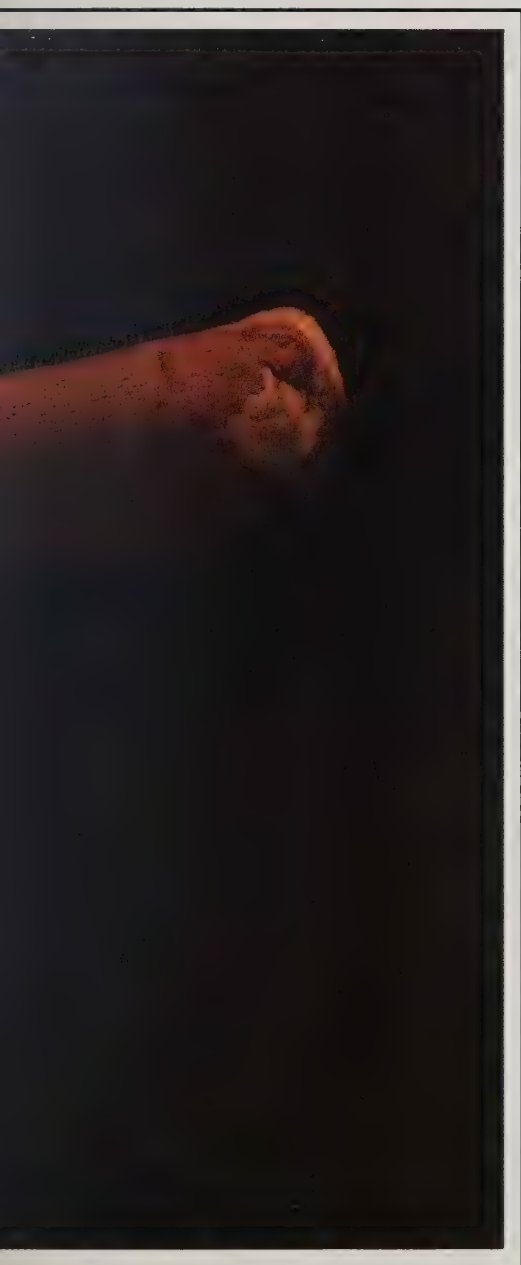
the greatest advance re since the siwak.

Plax* encourages compliance.

Pleasant-tasting and convenient, Plax* is easily incorporated into your patients' daily oral health care regimen.

For best results, patients should rinse with 1 tablespoon (15 mL) of Plax* for 30 seconds *before* brushing with their regular dentifrice.

New Plax*. The anti-plaque, pre-brushing rinse that is making dental history.



Checks Plaque
Between Checkups.

INTRODUCING ELIPAR II

360 GRAMS OF CURE.

Elipar II gives you the curing power of the original Elipar in a smaller, easier to handle package. The gun weighs just 360 grams and comes with three tips — the standard shaped tip, a pointed tip for deep cavities and a large diameter tip for fissure sealants. All tips may be sterilized by any method you choose.

Consistency of operation is assured via a micro processor that maintains light intensity by compensating for the aging of the bulb. Light output is 400-500NM for excellent polymerization as well as long bulb life. Plus, the mini-spot bulb may be replaced quickly and easily.

The compact main power unit features a 20 second timer with audible alarm for standard polymerization.

Elipar II. The lightweight, easy to handle cure for all your curing problems.

**Ash
Temple**
LIMITED

Canadians serving
Canadians.



EFFECT OF A DAILY 0.2% CHLORHEXIDINE RINSE on the oral health of an institutionalized elderly population

Lawrence Yanover, DDS, PhD
St. Catharines, Ont.

David Banting, DDS, DDPH, MSc
London, Ont.

Robert Grainger, DDS, MSD, DDPH
London, Ont.

Harinder Sandhu, BDS, PhD
London, Ont.

ABSTRACT

A 6-month clinical study of a once-daily rinsing with 10 ml of a chlorhexidine rinse by the institutionalized elderly showed that it is well accepted and can significantly reduce plaque and gingivitis scores in this population. Furthermore, *S. mutans* can be significantly suppressed in the oral cavity and this effect will last for at least six weeks following discontinuation of the rinse. This reduction of *S. mutans* may be important for control of root caries in susceptible patients.

SOMMAIRE

Dans une étude clinique, on a demandé à des personnes âgées placées dans un établissement de se rincer la bouche avec 10 ml de chlorhexidine. Les personnes âgées ont bien accepté ce rinçage quotidien et on a découvert qu'il aide à réduire considérablement le taux de la plaque et de la gingivite dans ce group d'âge. De plus, ce rinçage supprime le *S. mutans* dans la cavité buccale, effet qui perdure

six semaines après son arrêt. La suppression du *S. mutans* peut aider à réduire le nombre de caries radiculaires chez les patients susceptibles d'en avoir.

The proportion of elderly people is increasing in many western industrialized countries, including Canada. They are retaining more natural teeth until later life as a result of better dental care, but unfortunately, an increasing number will experience advanced periodontal problems. Carious lesions occurring on the roots of teeth exposed by periodontal disease will become a significant challenge to the dental profession in the future.¹

Recent review papers of root surface caries²⁻⁴ indicate that 10 to 80 per cent of the population have root surface carious lesions, with older, chronically ill and hospitalized people more frequently affected. The average number of root caries lesions per person can vary from 0.6 lesions under age 40 to 3.4 lesions in those over 60,⁵ and over 6 lesions per person among the institutionalized elderly.⁶

Root caries is generally associated with thick plaque adhering to the root surface.⁷ The microflora associated with root caries in humans has included *Actinomyces* spp, *Rothia dentocariosa*, *S. mutans*, *S. sanguis*, Arthrobacter-like organisms and lactobacilli.⁸⁻¹³ Longitudinal studies have linked root caries activity or the risk of their development to the presence of *S. mutans* and lactobacilli in root surface plaque.^{12,13}

The use of chlorhexidine for controlling dental plaque, gingivitis and caries has been thoroughly reviewed.¹⁴⁻¹⁷ Chlorhexidine gluconate (CHX) would be particularly applicable for use in elderly patients to enhance or even replace, where warranted, mechanical plaque control. This report will discuss the clinical and microbiological results of a six-month clinical trial of a flavoured 0.2 per cent chlorhexidine rinse in an institutionalized elderly population.

Materials and Methods

The target population for the study were residents 35 years of age and over in Parkwood Hospital, London, Ontario,

TABLE I

Characteristics of subjects by group at baseline

	CHX	CONTROL
Mean Age (Yrs) (Range)	64.4 (51-77)	67.9 (62-82)
Sex		
M	4	6
F	3	2
Teeth Present (Mean)	15.9	14.9
Root Surfaces		
% Sound	74.2	84.9
% Decayed	6.6	8.0
% Restored	6.0	4.1
% Excluded	13.2	3.0
Crown Surfaces		
% Sound	67.8	84.5
% Decayed	2.0	1.0
% Restored	24.9	13.5
% Rec. Decay	1.1	0.0
% Excluded	4.2	1.0

TABLE II

Mean plaque, gingival and bleeding index scores by group and examination

VARIABLE	GROUP	EXAMINATION		% CHANGE
		Baseline	Final	
P.I.	CHX	1.47	0.87*	- 40.8
	Control	1.38	1.46*	+ 5.8
G.I.	CHX	1.14	0.99*	- 13.2
	Control	1.05	1.10*	+ 4.8
Bleeding	CHX	19.26	16.39	- 14.9
	Control	18.72	18.72	0.0

* independent t test, $p < 0.05$

who had at least four natural teeth remaining. Patients with natural teeth were identified through the records of the dental department. The suitability of subjects to participate in a self-administered but supervised rinsing program was discussed with medical and dental personnel before informed consent was received from each patient, their family and the attending physician. All suitable subjects were screened for the presence of *S. mutans* according to the methods of Kohler and Bratthal,¹⁸ using a wooden spatula wetted with saliva and pressed directly against mitis salivarius agar (MSB) with bacitracin.¹⁹

All patients with detectable levels of *S. mutans*, the ability to participate in a daily rinsing program, a satisfactory medical history, and at least four natural teeth remaining, were accepted into the study. Baseline examinations of the subjects took place in the dental clinic

at Parkwood Hospital, with subjects brought to the clinic, examined and then returned to their rooms.

Subsequent examinations were performed at 10 weeks and 26 weeks. A microbiologic sampling session only was held at 32 weeks. Each examination included a series of procedures as follows: 1) medical history review, including use of antibiotics, 2) plaque sampling, 3) oral soft tissue examination, 4) periodontal examination, and 5) caries examination.

Plaque was sampled using a calcium alginate swab (Calgiswab, Spectrum Diagnostics, Glenwood IL) gently wiped across all facial, lingual and occlusal tooth surfaces and then placed immediately in 3.5 ml of reduced transport fluid²⁰ for subsequent processing. Soft tissues were visually inspected for any ulceration, irritation or other pathologic condition and subjects were questioned about any recent oral discomfort. Each

intact tooth was evaluated using the Plaque Index²¹ (PI) and the Gingival Index, (GI)²² and an oral photograph was taken. The periodontal examination consisted of measuring the distance of the periodontal attachment from the cemento-enamel junction at six sites on each tooth, using an electronic periodontal probe (Model 200A, Vine Valley Research, Rochester, New York), with probe pressure set at 75 newtons. Bleeding on probing was also recorded for each site, as was gingival recession, measured from the cemento-enamel junction to the crest of the gingiva. An examination for coronal and root surface caries was conducted, including missing and filled surfaces. Restored root lesions were recorded if it was obvious that the lesion necessitating the restoration originated at the cemento-enamel junction or was confined to the root surface. Otherwise, the surface was scored as restored cervical enamel caries.

Following the baseline examination, subjects were randomly divided into active (CHX) and control groups and were provided with a monthly supply of either 0.2 per cent CHX in a flavoured aqueous base, or placebo, respectively. Subjects were requested to use 10 ml of the solution as a rinse for 30 seconds and then expectorate. An assistant supervised the rinsing three days a week. No attempt was made to change oral hygiene measures, other than to provide toothbrushes and fluoride toothpaste to all study participants.

The microbiological samples were processed within one hour. Vials containing reduced transport fluid were vortexed (Vortex-Genie, Scientific Industries Inc., Batavia, N.Y.) at setting 3 for 5 seconds, serially diluted with phosphate buffered saline and 0.1 ml was plated onto each of MSB and Rogosa agar.²³ The plates were incubated at 37°C for 48 hours in a candle jar (MSB) or aerobically.²³ Colonies with morphologic features characteristic of *S. mutans* or lactobacilli were then enumerated.

Results

Seven active and eight control subjects completed the 6-month study. At baseline (Table I), the active and control groups were not significantly different (independent t-test, $p < 0.05$) with respect to age, teeth present or root and coronal caries experience. The rinsing program was well accepted, with a mean daily rinse usage over the experimental period of 10 ml in both groups.

Table II compares the plaque, gingival and bleeding indices between baseline and six-month examination for each

group. There was no significant difference between PII, GI and bleeding scores between active (CHX) and control groups at baseline. The active group had significantly lower plaque and gingivitis scores than the controls after 26 weeks of rinsing ($P < 0.05$). The active group also experienced a 46.6 per cent improvement in plaque and an 18.0 per cent improvement in gingivitis compared to the controls. Bleeding upon probing was reduced by 14.9 per cent in the active group but remained unchanged in the control group at week 26. This difference was not statistically significant.

S. mutans (Table III) was detected in 100 per cent of subjects at baseline. Only two of the seven active subjects compared to five of the eight control subjects were *S. mutans* carriers in the active group six weeks after discontinuation of the rinse, but an increase was seen in the control group. Lactobacilli detection frequency rose slightly during the study for the active group and remained unchanged in the control group.

Table IV shows that approximately a 1000-fold reduction in *S. mutans* counts was observed in the active group during the 26-week period.¹ These counts remained stable six weeks after discontinuation of the rinse. Reductions in *S. mutans* counts of 100-fold in the control group were evident after 26 weeks of rinsing, but levels began to return to baseline values after the rinse was discontinued. Significantly lower *S. mutans* counts were seen in the active as compared to the control group after 10 weeks of rinsing ($p < 0.05$) but not thereafter. There were no differences in lactobacilli counts between the active and control groups at any point in the study.

Discussion

The residents of Parkwood Hospital were chosen for this study because they were at high risk for root caries. The nature of their physical disabilities precluded effective oral self-care. One of the 16 subjects accepted at baseline did not complete the study due to failing health.

The mean age of the study subjects was slightly lower than the 68.6 years reported in another study of root caries at this institution and there were fewer retained teeth in these subjects than the average of 17.4 reported elsewhere.⁶ Although dental caries experience was observed at baseline, no final recording was taken owing to the short period of study and the small population. Based on a previous report,²⁴ root caries incidence would be about 0.01 lesions per subject per month or less than one new lesion in

TABLE III

Number and proportion of subjects yielding *S. Mutans* and Lactobacilli from plaque samples by group and examination

VARIABLE	GROUP	EXAMINATION		
		Baseline N(%)	Final N(%)	Follow-up N(%)
<i>S. Mutans</i>	CHX	7 (100)	2 (28.6)	2 (28.6)
	Control	8 (100)	5 (62.5)	6 (75.0)
Lactobacilli	CHX	3 (42.9)	4 (57.1)	4 (57.1)
	Control	6 (75.0)	6 (75.0)	6 (75.0)

TABLE IV

Mean counts of *S. Mutans* and Lactobacilli by group and examination (log cfu/ml)

S. MUTANS	BASELINE	WEEK 10	WEEK 26	WEEK 32
Active (sd)	5.28 (1.43)	2.05 (6.94)*	1.67 (8.17)	1.64 (2.81)
Control (sd)	5.88 (3.32)	5.74 (1.96)*	3.64 (10.07)	4.84 (3.29)
Lactobacilli				
Active (sd)	2.52 (10.19)	3.50 (7.43)	3.48 (12.28)	3.57 (12.03)
Control (sd)	3.44 (5.44)	3.85 (3.34)	3.42 (8.24)	4.32 (7.40)

* independent t test $p < 0.05$

the whole population for the study duration. In order to detect an anticaries effect in this population, one would have to follow up on a large number of subjects for a longer period.

The compliance rate of 10 ml per day on average for each subject was exactly as predicted and can be attributed to several factors: an acceptable tasting rinse was supplied in an easy-to-dispense bottle (Nalge, Rochester, N.Y., Model 3702-0025), with appropriate markings for correct daily self-application. Frequent patient contact was maintained by a research assistant who provided positive reinforcement, and good co-operation was received from nursing and pharmacy staff.

Significantly lower plaque levels for subjects rinsing with CHX have not been observed previously in an elderly population. The plaque reduction observed in this study was associated with a reduction in gingivitis and bleeding upon probing. It is hypothesized that the broad spectrum antimicrobial activity of CHX reduces the number of periodontal pathogens associated with gingivitis, leading to a reduction of inflammation and bleeding. It is unclear, however, whether a reduction in gingivitis will have any long-term effect on loss of attachment or alveolar bone loss.

A decrease in *S. mutans* counts was observed in control subjects only between week 10 and week 26. During this time, subjects received a professional scaling and prophylaxis. Levels were beginning to increase again by week 32. It is entirely possible that the scaling and prophylaxis temporarily reduced *S. mutans* levels. Many patients at Parkwood Hospital receive such routine preventive care and no attempt was made to alter this program for those in the study. Δ

This research was funded in part by the Medical Research Council of Canada and The University of Western Ontario Faculty of Dentistry.

Dr. Yanover is engaged in the private practice of pediatric dentistry in St. Catharines, Ont.

Dr. Banting is Professor in Community Dentistry and Associate Dean (Academic), Faculty of Dentistry, The University of Western Ontario, London, Ont.

Dr. Sandu is an Assistant Professor and Director of the Hard Tissue Research Unit, Faculty of Dentistry, University of Western Ontario, London.

Dr. Grainger, also of London, Ont., has served as a Research Statistician at the University of Western Ontario. He is now retired.

Reprint requests to Dr. Lawrence Yanover, 600 Ontario St. St. Catharines, Ont. L2N 4N7.

References

1. Ravald, N. and Hamp, S.E. Prediction of root surface caries in patients treated for advanced periodontal disease. *J Clin Periodont* 8:400-414, 1981.
2. Newbrun, E., Armitage, G., Daniels, T.E. et

al. Root caries. *Calif Dent Assoc J* 12:68-73, 1984.

3. Seicher, U. Root surface caries: a critical literature review. *JADA* 115:305-310, 1987.

4. Yanover, L. Root surface caries: Epidemiology, etiology and control. *J Can Dent Assoc* 53:859-842, 1987.

5. Katz, A.V., Hazen, S.P., Chilton, N.W. et al. Prevalence and intraoral distribution of root caries in an adult population. *Caries Res* 16:265-271, 1982.

6. Banting, D.W., Ellen, R.P. and Fillery, E.D. A longitudinal study of root caries: baseline and incidence data. *J Dent Res* 64:1141-1144, 1985.

7. Schamschula, R.G., Keyes, P.H. and Hornabeck, R.W. Root surface caries in Lufa, New Guinea. 1. Clinical observations. *JADA* 85:603-608, 1972.

8. Jordan, H.V. and Hammond, B.F. Filamentous bacteria isolated from human root surface caries. *Arch Oral Biol* 17:1333-1342, 1972.

9. Sumney, D.L. and Jordan, H.V. Characterization of bacteria isolated from human root surface caries lesions. *J Dent Res* 53:343-351, 1974.

10. Syed, S.A., Loesche, W.J., Pape, H.L. et al. Predominant cultivable flora isolated from human

root surface caries plaque. *Infect Immunol* 11:727-731, 1975.

11. Brown, L.R., Billings, R.J., O'Neill, P.A. et al. Microbiological comparisons of carious and non-carious root and enamel tooth surfaces. *J Dent Res* 62(special):295 (abstract 1137), 1984.

12. Ellen, R.P., Banting, D.W. and Fillery, E.D. *Streptococcus mutans* and *Lactobacillus* detection in the assessment of dental root surface caries risk. *J Dent Res* 64:1245-1249, 1985.

13. Ravald, N., Hamp, S.E. and Birkhed, D. Long-term evaluation of root surface caries in periodontally treated patients. *J Clin Periodont* Vol. 13:758-767, 1986.

14. Hirst, R.C. Chlorhexidine: a review of the literature. *Periodont Abstract* 20 (summer): 52-58, 1972.

15. Gjermo, P. Chlorhexidine in dental practice. *Clin Periodont* 143-152, 1974.

16. Bain, M.J. Chlorhexidine in dentistry — a review. *NZ Dent J* 76:49-54, 1980.

17. Tonelli, P.M., Hume, W.R. and Kenney, E.B. Chlorhexidine: a review of the literature. *Periodont Abstr* 31:5-10, 1983.

18. Kohler, B. and Bratthall, D. Practical method

to facilitate estimation of *Streptococcus mutans* levels in saliva. *J Clin Microbiol* 9:584-588, 1979.

19. Gold, O.G., Jordan, H.V. and van Houte, J. A selective medium for *Streptococcus mutans*. *Arch Oral Biol* 18:1347-1364, 1973.

20. Syed, S. and Loesche, W. Survival of human dental plaque flora in various transport media. *Appl Microbiol* 24:628-644, 1972.

21. Silness, J. and Loe, H. Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontal condition. *Acta Odont Scand* 22:121-135, 1964.

22. Loe, H. and Silness, J. Periodontal disease in pregnancy. *Acta Odont Scand* 21:533-551, 1963.

23. Rogosa, M., Mitchell, J.A. and Wiseman, R.A. A selective medium for the isolation and enumeration of oral lactobacilli. *J Dent Res* 30:682-689, 1951.

24. Banting, D.W., Ellen, R.P. and Fillery, E.D. Prevalence of root surface caries among institutionalized older persons. *Comm Dent Oral Epidemiol* 8:84-88, 1981.



DALHOUSIE UNIVERSITY FACULTY OF DENTISTRY

POST-GRADUATE PROGRAM IN PERIODONTICS

The Division of Periodontics invites applications for places in their Post-Graduate Program in Periodontics, commencing September 1989. This fully accredited program is of two years duration and provides both clinical and research experience leading to a Certificate in Periodontics.

Inquiries should be directed to:

Dr. Trevor Chin Quee
Director
Post-Graduate Program in Periodontics
Division of Periodontics
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia
Canada B3H 3J5



FACULTY OF DENTISTRY UNIVERSITY OF TORONTO

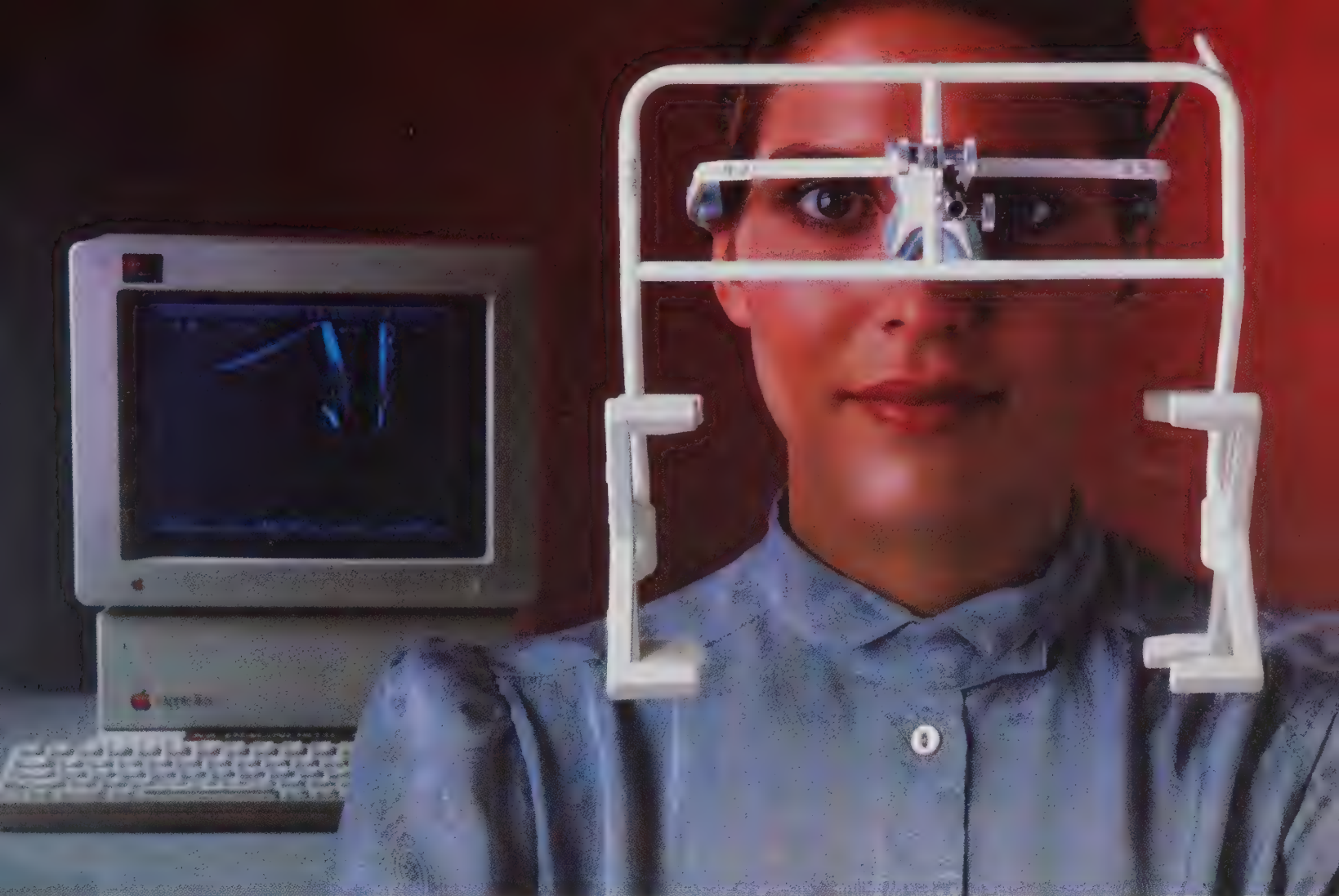
CONTRACTUALLY LIMITED TERM APPOINTMENT IN ORAL SURGERY

Applications are invited for a five-year term assistant professorial appointment in Oral Surgery. Applicants must hold a registerable qualification in oral surgery and have a higher academic degree (Ph.D. or equivalent).

Duties will consist of teaching and research. An extensive knowledge of laboratory histological procedures, and experience in clinical and laboratory investigations with dental implants is required.

Deadline for receipt of applications is September 30 for appointment 1 November 1988. The University of Toronto offers an equal opportunity for employment to qualified male and female candidates. All applications should be forwarded to Dr. J.M. Symington, Faculty of Dentistry, 124 Edward Street, Toronto, Ontario M5G 1G6.

Canadian immigration regulations require this advertisement to be directed to Canadian citizens and/or permanent residents.



© 1987 Myo-Tronics, Inc.

Head And Shoulders Above The Rest.

The latest advancement in Neuromuscular Technology. From the company that invented it.

To be sure you're getting the most advanced neuromuscular instrumentation available, go to the company that invented the science. Myo-Tronics. Maker of state-of-the-art instrumentation for over 19 years. No one knows the technology better.

Our new K-6 Diagnostic System sets the standard others aspire to. No one can touch it for accuracy

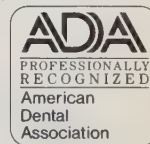
or ease of use. It provides a three-dimensional analysis of the most minute mandibular movement. Without the programming and complex commands required by other systems.

You'll get an objective occlusal analysis on paper, immediately. Providing clear documentation for insurance and legal proceedings. And it can be used to record the patient's history and exam results, too.

But equipment isn't the only reason to choose Myo-Tronics. We

offer the largest neuromuscular dentistry education program in the world. With in-depth training at all levels. No wonder more than 5000 practitioners rely on Myo-Tronics. We wrote the book on neuromuscular diagnosis.

Raise your diagnostic procedures head and shoulders above the rest. Call Myo-Tronics at 1-800-426-0316 for more information on the K-6 or upcoming seminars.



MYO-TRONICS, INC.

Myo-Tronics, Inc., 720 Olive Way, Suite 800, Seattle, WA 98101, (206) 622-2121, Telex: 32-8410.

Ultraviolet Air Sterilizer

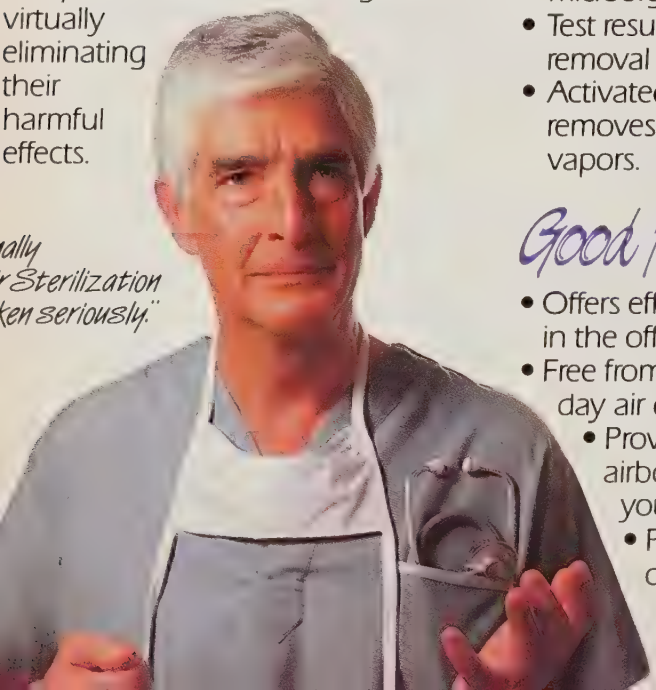
*Today's Greatest Advancement towards
an Aseptic Environment*



The Ultraviolet Air Sterilizer provides an excellent "Line of defence" against the transfer of airborne BACTERIA, VIRUSES & other microorganisms.

With an innovative Ultraviolet Light Chamber*, which disrupts vital (DNA) genetic components of the microorganisms, virtually eliminating their harmful effects.

*...ally
Sterilization
...ken seriously."*



Proven

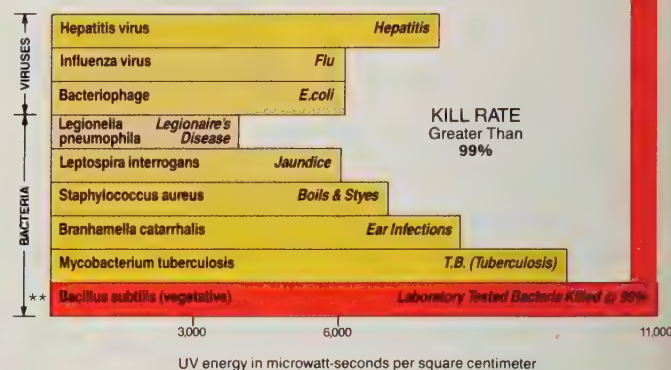
- UV. Air Sterilization leads to an appreciable reduction in the number of airborne microorganisms.
- Test results indicate a 99% ** removal of viable organisms.
- Activated carbon filter material removes various contaminant vapors.

Good for business

- Offers effective Infection Control in the office.
- Free from the high cost of present day air disinfecting methods.
- Provides protection from airborne contaminants, for your patients and staff.
- Protection for your practice is of vital importance.

ULTRAVIOLET ENERGY LEVELS (253.7 NM)

NEEDED FOR 99.9% DESTRUCTION



For more information call us today.

ALLSEASONS

Environmental Control Inc.
51 Esna Park Drive, Unit 5
Markham, Ontario
Canada L3R 1C9
Tel. (416) 475-9795



*Various patents pending

**Test results available on written request

A conservative

COSMETIC IDENTIFICATION CONCEPT

for prosthetic appliances

W.A. Cotter, DDS, MS
S.A. Chaney, BDS, MSD

ABSTRACT

This article describes a procedure for the identification of dentures using the Dentify system developed by Samis. It utilizes a small but heat resistant metal chip on which identification information is inscribed by means of an engraver. The chip is then placed on a prepared site on the denture and covered by clear acrylic.

SOMMAIRE

Dans cet article, il est question d'un moyen pour identifier les prothèses, le système Dentify mis au point par la société Samis. Il s'agit d'une micro-plaquette en métal capable de résister à la chaleur sur laquelle sont gravés les renseignements voulus. La micro-plaquette est ensuite fixée à la prothèse à un endroit préparé exprès, puis recouverte d'acrylique transparent.

Misplaced or lost dentures is a common occurrence in nursing homes and hospitals and returning unmarked dentures to their rightful owners can be a frustrating and time-consuming exercise for attending staff, not to mention the unhygienic practice of "try and see".

Identification of dentures has been proposed and various methods of identification have been advocated by many authors.¹⁻⁷ These methods have ranged from simple surface marking to imbedded nylon or metal strips placed close to the surface of acrylic resin dentures. These strips, marked or engraved with the patient's name and/or social security number, provide an easy method of identification.

Marked dentures are useful for identification of human remains after disasters where fire has made the identification of bodies by regular means impossible. However, for this purpose the identification label must be indestructible after being exposed to high temperature; it

must also be readable on recovery. The purpose of this paper is to describe a means of identifying dentures used at the College of Dentistry, University of Saskatchewan. This method serves the purpose of identifying the lost or misplaced denture and also because of the indestructibility of the label, serves to assist in identification of persons involved in tragedies such as plane crashes and fires.

Methods and materials

The method used for identification in this procedure is based on the Dentify system introduced by Samis.^{8*}

The label is a small heat-resistant metal chip (Fig. 1) which in tests was intact and readable after an exposure to a temperature of 1500°C for one hour in a burnout furnace. The chip meets the requirements as outlined in "Standards for Identification", by the Council on

* Manufactured by Dentify Canada, Montreal.

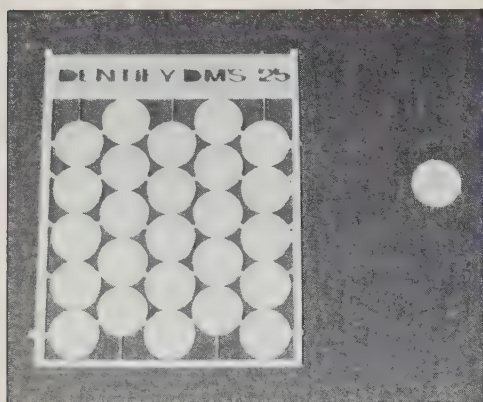


Fig. 1: Identification chips as received from Dentify (Canada) Ltd. for use with complete dentures.

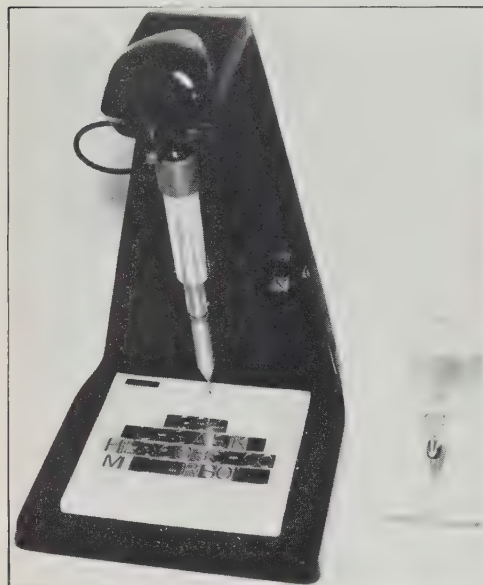


Fig. 2. Dentify engraver.

Prosthetic Services and Dental Laboratory Relations⁹ namely:

1. The strength of the prosthesis must not be jeopardized
2. It must be easy and inexpensive to achieve
3. The identification system must be efficient
4. The markings must be visible and durable**
5. The identification must withstand humidity and fire
6. The identification mark should be cosmetically acceptable to the wearer.

The patient's name and initials, the year and social insurance number are inscribed on the chip by means of a Dentify engraver (Fig. 2) and the chip is embedded on the acrylic resin denture at a location not likely to be noticeable. In cases where patients object to the use of their social insurance number, the Saskatchewan hospitalization number is used.

** Occasionally requires the aid of minimal magnification.

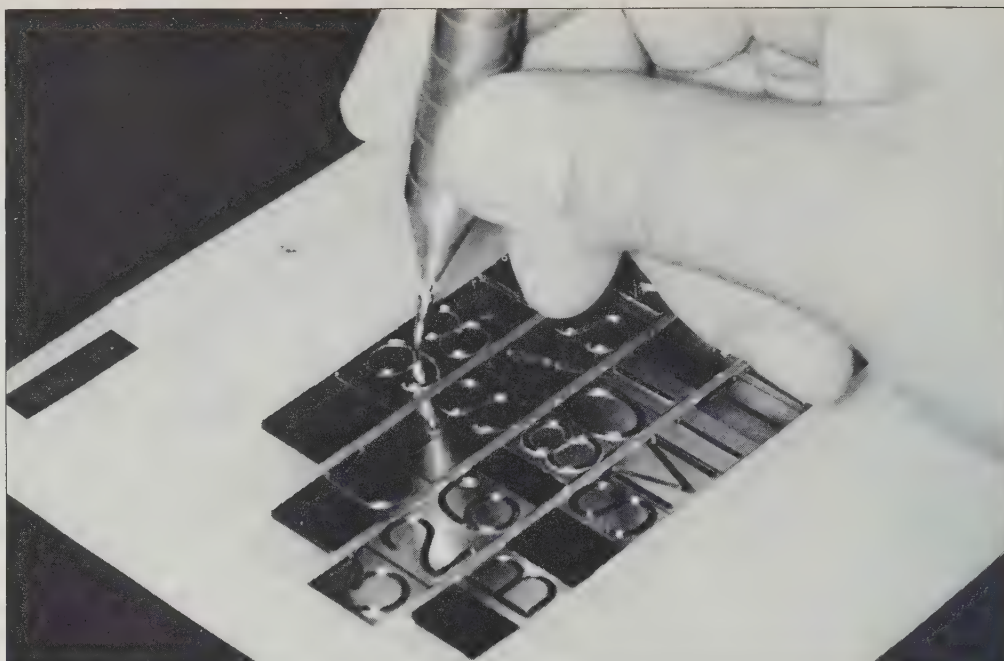


Fig. 3. Engraving of chip.

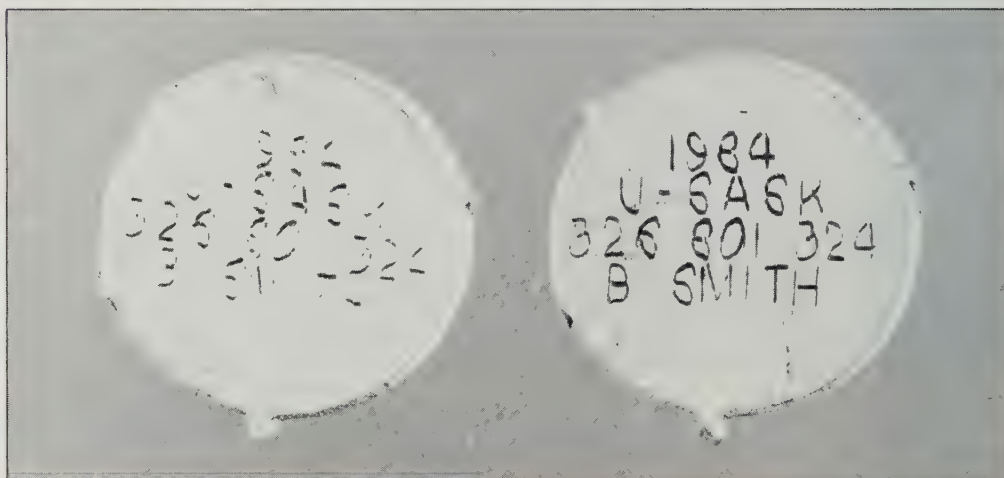


Fig. 4. Dentify chip before and after immersing in oxidizing solution.



Fig. 5. Close-up of processed chip in maxillary denture.

The technique for this method of identification can best be described as follows:

1. The identification chip is engraved with the desired information and checked under magnification for accuracy. An oxidizing liquid is painted on the engraved chip, left for five seconds and rinsed in water. This allows the inscription to appear black against the gold background of the chip (Figs. 3, 4 and 5).
2. The site selected for the chip is normally in the external surface of the lingual flange of the mandibular denture opposite the molar teeth. The upper site is usually the external palatal surface of the maxillary denture, in the region of the first and second molars (Figs. 6 and 7). An alternate site such as the distobuccal flange is equally acceptable.
3. The preparation of the site is carried out by drilling to a depth of 2 mm by utilizing a self-limiting bur and finishing with a No. 8-10 round bur to provide a smooth surface (Figs. 6 and 7).
4. The engraved chip is placed in the prepared site after the site and chip have been painted with clear acrylic liquid. The monomer and polymer-powder* are mixed to flow into the site and over the chip (Figs. 8 and 9). Polymer powder is added in excess on the surface to absorb excess monomer and prevent flow.
5. The denture is placed in a pressure pot with warm water at 18-20 lbs/sq. in. for five minutes.
6. On removal, the site of the chip is trimmed and polished in the usual way for acrylic denture resin (Fig. 10).

On an individual basis, this procedure takes 20 minutes for a complete set of dentures. This includes the engraving, acid-etching, placement in denture and five minutes curing time. However, on a multiple basis, i.e., for four or five sets of dentures, the time per set can be reduced considerably.

Conclusion

A method of denture identification used at the Dental College, University of Saskatchewan, has been described. It employs embedding a metal chip which will withstand prolonged exposure to temperatures of 1500°C.

This process conveniently serves the purpose of identifying lost dentures. It could also serve to identify dentures wearers who may experience amnesia

* Orthocryl (crystal) self curing resin, Stratford-Cookson Company.

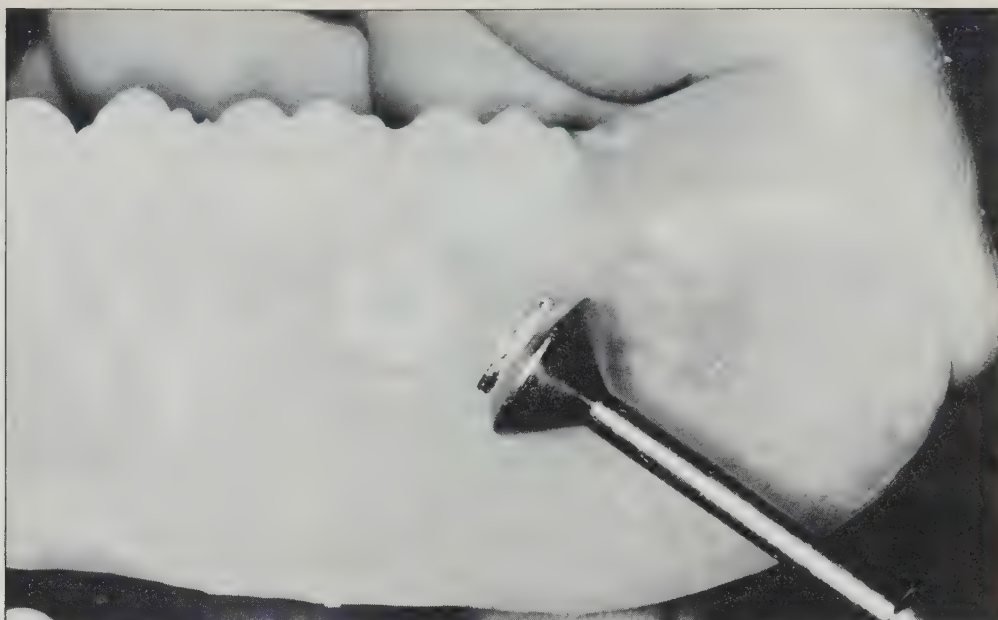


Fig. 6. Site prepared with self-limiting bur for mandibular denture.



Fig. 7. Site prepared with self-limiting bur for maxillary denture.



Fig. 8. Positioning of chip in clear, self-cure acrylic resin.



Fig. 9. The adding of clear acrylic to fill chip site to excess.



Fig. 10. Dentify chips after trimming and polishing in both dentures.

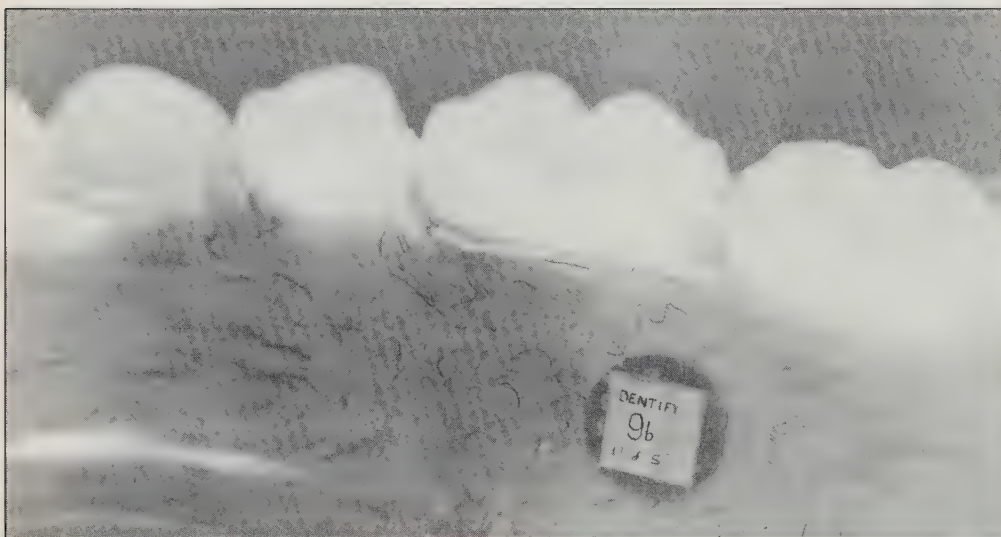


Fig. 11. An experimental chip design after four years of function. No deterioration was evident at time of recall.

and sudden illness, and victims of disasters such as plane crashes or fires, etc., where routine methods of identification are difficult or impossible. The identification service has been rendered on a clinical research basis to date. Four hundred and forty-seven dentures have been labelled for identification by this method. The longest has been in place for four years (Fig. 11). A record has been kept of all patients and is entered in a computer system for easy retrieval.

The advantages of the Dentify system for denture identification are: 1) it is equally applicable to dentures during fabrication as it is for modification of existing dentures; 2) it is esthetically acceptable, easy to use and durable without any damage to the prosthesis; 3) it is capable of recording sufficient information to provide a positive identification; and 4) it is a quick, uncomplicated technique and requires a minimum of equipment and space in the laboratory or dental office.

An inexpensive routine, complete denture identification service has resulted from the above project. In future this will be extended to include removable partial denture bases. A smaller Dentify chip is available for placement in partial denture bases. Δ

The authors would like to acknowledge Mr. Brian Ambrose, junior technician at the College of Dentistry, University of Saskatchewan, for the practical application of the Dentify system.

Dr. Cotter now retired was professor, Division of Removable Prosthodontics, Department of Restorative and Prosthetic Dentistry, College of Dentistry, University of Saskatchewan.

Dr. Chaney was a professor, Removable Prosthodontics, Department of Restorative and Prosthetic Dentistry, University of Saskatchewan, at the time of writing this article.

Reprint requests to: Dr. S. Chaney, 316 Smyth Medical Bldg, 1929 Russell Road, Ottawa, Ont. K1G 4G3.

References

1. Davis, D.J. "Invisible" denture identifications: A forensic aid. *J Prosthet Dent* 48:221, 1982.
2. MacEntee, M.I. and Campbell, T. Personal identification using dental prostheses. *J Prosthet Dent*. 1979. Vol. 41(4) p. 377-380.
3. Jerman, A.C. Denture. 1970. *JADA* 80:1358-1368.
4. Ryan, E.W. Suggested auxiliary method of identification. *JADA* Vol. 65:64, 65, 1962.
5. Woodward, J. Denture marking for identification. *JADA* 99:(1) p. 59, 60. 1979.
6. Cook, J. Denture identification procedures. *J. Mich Dent Assoc*. Vol. 65(3):135, 1983.
7. Todo, J. and Leukens, E.M. A technique for placing names in denture. *J Periodont Dis* 37:469, 1977.
8. Samis, P.L. Systems for dental identification. *Can Soc Forensic Soc J* 8:77-86, 1975.
9. Standards for Identification. Council on Prosthetic Services and Dental Laboratory Relations. American Dental Association.

**DEDICATED TO THE
MEDICAL PROFESSION**

MDICL[®] INC.



MIDICL INC.
175 TORYORK DRIVE, UNIT #6
WESTON, ONTARIO
M9L 2Y7

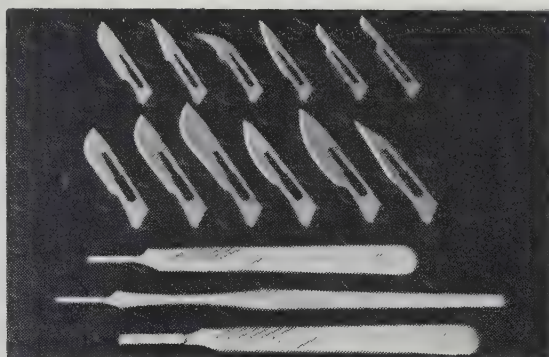
Please call from anywhere in Canada
Toll Free - 1-800-387-7477

TEL: (416) 747-1125
FAX: (416) 783-5795

SUPER SPECIALS 1988

STERILE SURGICAL BLADES

AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20,
21, 22, 23, 24, 25

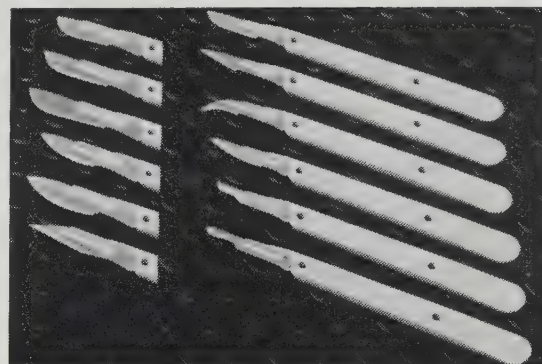


SUPERB SHARPNESS, FOIL WRAPPED, IN QUICK DISPENSER BOXES.
MADE IN JAPAN FROM THE HIGHEST QUALITY MATERIALS, FOR
ASSURED UNIFORMITY.

VERY SPECIAL PRICE
ANY SIZE **\$17.99** Box of 100

STERILE DISPOSABLE SCALPELS

HIGH QUALITY BALANCES WITH A SUPERB
ARROW SHAPED DESIGN FOR ASSURED GRIP



EACH SCALPEL IS PACKED IN A POLYESTER SHEET OF ALUMINUM FOIL
TO PROTECT BLADE EDGES. CONVENIENTLY PACKED IN DISPENSER
BOXES. AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20, 21, 22, 23, 24, 25

VERY SPECIAL PRICE
ANY SIZE **\$11.99** Box of 20

SILK SURGICAL SUTURES

HIGHEST QUALITY OF SWISS MADE SUTURES OVER 40
YEARS WORLD MARKET - AVAILABLE IN ALL SIZES & TYPES.

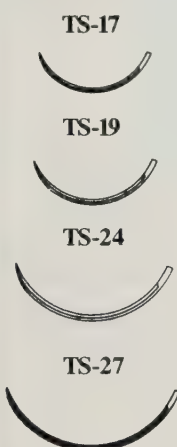
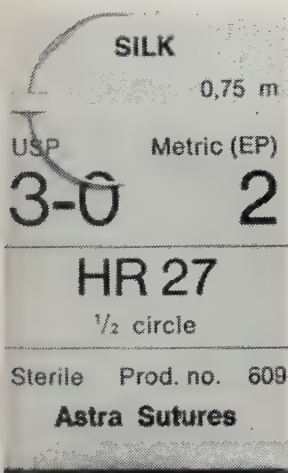
NEEDLES ARE SHOWN IN
ACTUAL SIZE OF SHAPE & LENGTH

TS-needles 

3/8 CIRCLE, REVERSE CUTTING

HS-needles 

1/2 CIRCLE, REVERSE CUTTING



OTHER SIZES & STYLES
ARE AVAILABLE

VERY SPECIAL PRICE
ANY SIZE **\$17.99** Box 12

SUNDRY SPECIALS

1. Dental bibs, 3 Ply 500 per package **\$23.99**
2. Dental bibs, waterproof 500/boxed **\$34.99**
3. Sterilizing solution BIOCIDE-R 4/4L **\$79.99**
4. Latex Gloves S/M/L Per 100 **\$17.99**
5. STERIWIPES - Towelettes with Chlorhexidine Gluconate ea. **\$5.99**
6. CANPROCAINE - Topical Anesthetic Spray/5% Lidcoaine 150ml **\$8.99**
7. DERMAGUARD - Microcidal hand protectant **\$7.99**
8. Aneroid Blood Pressure Kit & Stethoscope **\$29.99**
9. Resuscitator Kit with case **\$179.00**
10. TENS DUAL CHANNEL - Variable Mode **\$179.99**
11. Lab Coats Saniguard treated to fight infection **\$24.75**
12. Face Masks Slip On's 50 per box **\$13.99**

VISA & MASTERCARD ARE WELCOME.

TO ORDER OR FOR FURTHER INFORMATION PLEASE CALL TOLL FREE FROM ANYWHERE IN CANADA
1-800-387-7477

Construire pour l'avenir

Il faut plus que des briques et du mortier pour bâtir un cabinet. Il faut du courage et de la volonté. Vous le savez. Vous donnez le meilleur de vous-même chaque jour pour permettre à votre cabinet de prendre de l'expansion et de s'améliorer. Et ce n'est pas facile.

Vous n'êtes cependant pas tout seul. Le CDSPI est là pour vous aider.

Vous bâtirez votre cabinet bien plus facilement avec l'aide de quelqu'un qui se sent tout aussi concerné par votre cabinet et votre croissance personnelle que vous l'êtes. Nous sommes conscients de la valeur de votre temps et possédons les ressources et l'expérience nécessaires pour vous aider, et vous permettre ainsi de vous consacrer à votre vocation propre.

Nous sommes votre organisme de services, avec pour seule mission de fournir des services de qualité à la profession dentaire.

Pour de plus amples renseignements sur les services que le CDSPI peut vous offrir, appelez-nous dès aujourd'hui!

INFORMATION COMPÉTENCE VOLONTÉ SERVICE



Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11 Québec et Ontario, *sauf* pour la région avec l'indicatif régional 807

497.71.17 Toronto et environs

Le texte ci-dessus a été approuvé par nos consultants/courtiers et nos assureurs.

LIQUIDE CRÉVICULAIRE

Partie I: Signification clinique

André Lebire*

Jean-François Tessier*

Marcel Proulx**, DDS, MScD, MRCD(C)

Serge Roy**, DMD, MScD

René-Guy Landry**, DMD, Dipl (Paro), MRCD(C)

RÉSUMÉ

Plusieurs relations existent entre le liquide crévulaire et certaines conditions systémiques et locales. Le liquide crévulaire peut devenir un bon aide diagnostique pour le praticien. Cet ouvrage se veut une revue de la littérature des articles les plus pertinents au sujet de l'importance du liquide crévulaire.

ABSTRACT

A lot of relations have been made between crevicular fluid and, systematic and local conditions. The crevicular fluid can be helpful for the practitioner and become a good diagnostic aid. This paper is a major literature review about the clinical interpretation of crevicular fluid.

Introduction

Plusieurs relations ont été faites entre la présence de liquide crévulaire et certaines conditions systémiques et locales. Quoique plusieurs hypothèses ont été confirmées sur son origine, sa composition et ses effets, de nombreuses interrogations n'ont pas reçu réponse. D'où la nécessité de recherches additionnelles.

Cet ouvrage se veut une revue exhaustive de la littérature des articles les plus pertinents sur l'importance et la signification clinique du liquide crévulaire (L.C.).

La santé en général et le liquide crévulaire

L'être humain présente, sur le plan physiologique, des périodes d'activités et de repos, que ce soit en termes d'années, de mois et même de journées. La périodicité circadienne* de la température corporelle est bien documentée et pratiquement acceptée de tous. Bissada et coll.,¹ en 1967, ont démontré que la sécrétion du liquide crévulaire avait aussi cette particularité. Ainsi, sur 15 individus soumis au même protocole expérimental, ils prouvent que le taux de sécrétion le plus élevé survient à 22 heures pour chacun des individus mais qu'il varie pour chacun d'entre eux selon le site de prélèvement (d'une poche parodontale à l'autre sur le même individu). Une autre relation veut que la température corporelle atteigne son maximum 4 heures avant, soit vers 18 heures.

De plus, le cycle circadien du liquide crévulaire démontré dans cette expérience confirme les études de Irons² (1965) qui décrivent le même cycle en ce qui a trait aux cellules inflammatoires (les leucocytes polynucléaires) lors de toute inflammation.

Déjà, en 1964, Egelberg³ met en évidence une corrélation positive entre, d'une part, le degré de l'inflammation et le débit du liquide crévulaire et, d'autre

part, l'importance de l'infiltrat des cellules inflammatoires et la quantité de liquide crévulaire.

Mais, puisqu'il y a un lien entre le liquide crévulaire, l'inflammation et le cycle circadien de la température corporelle, pourrait-il aussi exister des liens avec les désordres systémiques? Oui, et plusieurs auteurs s'intéressent au sujet.

Il est reconnu que, chez le diabétique, la prédisposition aux maladies parodontales est augmentée et que, par voie de conséquence, le débit du liquide crévulaire l'est aussi. Ringelberg et coll.,⁴ en 1977, décrivent bien cette relation dans leur étude effectuée sur 56 enfants diabétiques et 41 non-diabétiques, avec les mêmes conditions de vie, soit dans une colonie de vacances, et la même évaluation parodontale (indice de plaque de Loë). Ils conclurent que l'état diabétique influence positivement le débit du liquide crévulaire. D'une façon concomitante à cette étude, ils se préoccupèrent de 3 autres paramètres: l'âge, le sexe et la race.

Aucun de ces paramètres n'ont d'influence sur le débit du L.C. contrairement à l'état diabétique. Ainsi, ils confirment les résultats qu'avait obtenus Bernick⁵ en 1975. D'autres études sur l'influence des hormones sexuelles démontrent qu'elles n'ont pas d'effets sur le débit du liquide crévulaire. Lors des menstruations ou de la grossesse, les facteurs physiologiques induits par ces états n'ont pas d'effets mais les différences notées (*Gingivitis menstrualis*, par Klein, 1934)⁶ sont plutôt dues à des facteurs émotionnels influençant négativement l'hygiène buccale. Ainsi, le débit du liquide crévulaire

* qui se rapporte à une durée de 24 heures.

* Étudiants inscrits au programme de doctorat en médecine dentaire, École de médecine dentaire, Université Laval, Ste-Foy, Québec.

** Professeurs à la section de Parodontie, École de médecine dentaire, Université Laval, Ste-Foy, Québec.

laire peut être influencé par d'autres facteurs que l'inflammation locale et il peut aussi nous renseigner sur ces facteurs.

Kleinberg et Gollub,⁷ en 1985, affirment que l'analyse du liquide crévulaire nous fournit des informations sur le taux de glucose dans le sang et le niveau d'hormones sexuelles consécutives aux dysfonctions rénales et hépatiques. Certaines dysfonctions de l'organisme provoquent l'apparition de substances dans le liquide crévulaire. Ainsi, le liquide crévulaire aurait une importance insoupçonnée parmi nos moyens de diagnostic.

Quantification de l'inflammation gingivale

Il est maintenant reconnu (Kleinberg et Gollub, 1985;⁷ Pellat, 1975;⁸ Kaess, 1973⁹) que l'augmentation du liquide crévulaire signifie la présence d'une inflammation. Historiquement, Serres,¹⁰ en 1817, et Black,¹¹ en 1915, s'y sont intéressés, mais ils ont abandonné cette idée du fait que le sulcus ne contenait pas de glande. Mais, en 1952, Brill¹² et Waerhaug¹³ ont fait la preuve de la présence d'un liquide dans le sulcus gingival. Les chercheurs se sont posés la question à savoir si la quantité de liquide crévulaire recueilli pouvait être en relation avec le degré d'inflammation clinique.

Egelberg (1964)³ conclut que la quantité de liquide crévulaire recueilli est plus importante au niveau des papilles que des surfaces vestibulaires et linguales. La profondeur des poches mésiales et distales étant plus importante que celle des poches vestibulaires et linguales expliquant ainsi la concentration élevée de microorganismes responsables de l'inflammation.

Egelberg (1964)³ démontre aussi que la quantité de liquide crévulaire est également fonction de la stimulation induite dans l'environnement par une dent affectée d'un traumatisme occlusal, par l'attache d'un pontique, par une dent supportant les bras d'une pièce de prothèse partielle amovible, par la profondeur de la poche parodontale, etc. C'est à partir de ses conclusions que les chercheurs émettent l'hypothèse que le liquide crévulaire était un exsudat inflammatoire et que, conséquemment, on ne devrait pas le retrouver au niveau d'une gencive saine. Cependant, cette hypothèse ne fait pas l'unanimité puisque pendant plusieurs années des résultats contradictoires ont été publiés. Nagao (1967),¹⁴ Oliver, Holm-Pederson et Loë (1969)¹⁵ arrivaient à des résultats différents. Essentiellement, deux erreurs rendent possible ces résultats différents: la

première est une erreur d'appréciation de la gencive saine et la seconde est la profondeur d'insertion de la bande de papier filtre dans le sulcus qui, en soi, est un stimulus qui provoque l'exsudation.

Il est donc essentiel d'introduire la notion de "gencive saine". L'inflammation se traduit toujours par des modifications histologiques qui sont proportionnelles à l'atteinte de l'intégrité gingivale. Des coupes histologiques de tissu gingival (Kaess, 1973)⁹ montrent toujours dans leur chorion un infiltrat inflammatoire.

De plus, même une gencive cliniquement saine présente un certain nombre de cellules inflammatoires dans son chorion sous-jacent à l'épithélium du sulcus. Comme une gencive histologiquement saine n'existe pratiquement pas (Kaess, 1973),⁹ l'absence de liquide crévulaire signifierait la santé gingivale.

Plusieurs groupes de chercheurs, Egelberg (1964),³ Oliver, Holm-Pederson et Loë (1969),¹⁵ Orban et Stallard (1969),¹⁶ Rudin, Overdisk et Rateitschack (1970),¹⁷ Kaess et Llory (1971),¹⁸ s'intéressent à la quantité de liquide crévulaire par rapport au degré histologique de l'inflammation.

Le liquide crévulaire est prélevé à l'aide de bandes de papier filtre dont la surface imprégnée est calculée après coloration à la ninhydrine. Ils constatent tous une augmentation de la quantité de liquide crévulaire en fonction de l'indice gingival de Loë ainsi qu'une augmentation du nombre de cellules inflammatoires en fonction de la quantité du liquide crévulaire et de l'indice gingival. De plus, Rudin, Overdisk et Rateitschack (1970)¹⁷ trouvent également une relation négative entre la quantité de liquide crévulaire et la teneur en fibres collagènes de la gencive marginale.

Plus récemment, Freidman et coll. (1983)¹⁹ et Chambers et coll. (1984)²⁰ suggèrent même que la présence de l'enzyme lysosomal et/ou d'aspartate aminotransférase est une indication d'une parodontite juvénile ou de l'adulte.

En résumé, la présence de liquide crévulaire signifie la présence d'inflammation alors que la quantité et la composition histologique de ce liquide traduisent le degré de cette inflammation.

Médicaments dans le liquide crévulaire

Fort de ces résultats, les chercheurs se demandent si l'on ne pouvait pas se servir du liquide crévulaire comme "véhicule médicamenté" lors d'une thérapie parodontale. En 1958, Brill et Krasse²¹ démontrent que la fluorescine injectée chez un chien se retrouve dans le liquide

crévulaire en très peu de temps et en concentration élevée par rapport à la concentration sanguine.

Brill et Bjorn (1959)²² reproduisent l'expérience chez l'homme. Le liquide crévulaire contient la fluorescine, alors que les autres sites étudiés (front, muqueuse buccale, langue, glandes salivaires et narines) n'en contiennent pas. De là, plusieurs expériences avec d'autres produits, dont les antibiotiques, donnent des résultats intéressants. Lindhe (1982)²³ expérimente la tétracycline. Sur des patients atteints de parodontite juvénile, un détartrage, un surfaçage radiculaire et une antibiothérapie résolvent les lésions et, dans 90% des cas, préviennent la récurrence. Aujourd'hui, des études à double insu sont en marche avec la spiramycine comme antibiothérapie, mais toujours complémentaire au détartrage et au surfaçage radiculaire. De nombreux cas ont été reportés dans la littérature (Roy, 1985;²⁴ Turnbull et Pearson, 1978²⁵) où l'état du parodonte s'était amélioré sans que l'on ait fait mention du liquide crévulaire. Donc, il y a là de bons espoirs que l'adjonction de l'antibiothérapie per os, utilisant le liquide crévulaire comme véhicule, procure aux dentistes une avenue thérapeutique intéressante.

Le liquide crévulaire et la thérapie parodontale

Pour le praticien, l'évaluation de la condition du patient est essentielle pour l'élaboration de son plan de traitement. Jusqu'à présent, les seuls moyens efficaces et reconnus pour combattre à la source les maladies parodontales est le maintien adéquat de l'hygiène buccale et l'application des moyens conventionnels. Bien sûr, des adjuvants thérapeutiques comme les antiseptiques et les antibiotiques peuvent aider au traitement.

Le liquide crévulaire devient un outil utile au praticien. Dans un second ouvrage, les auteurs discutent entre autres d'un outil de diagnostic conçu pour évaluer ce liquide dans une revue de la littérature des méthodes de collection. Δ

Demandes de tirés à part:
René-Guy Landry
École de médecine dentaire
Université Laval
Ste-Foy, QC
G1K 7P4

Bibliographie

1. Bissada, N.F., Schaffer, E.M., Haus, E. Circadian periodicity of human crevicular fluid flow. *J. Periodontol.*, 38: 36-40, 1967.
2. Irons, W. Circadian rhythms in the oral and gingival epithelium of the rat. M.S.D. Thesis, University of Minnesota, 1965.
3. Egelberg, J. Gingival exudate measurements

for evaluation of inflammatory changes of the gingivae. *Odont. Rev.*, 15: 381-388, 1964.

4. Ringelberg, M.L., Dixon, D.O., Francis, A.O., Plummer, R.W. Comparison of gingival health and gingival crevicular fluid flow in children with and without diabetes. *J. Dent. Res.*, Feb., 56(2): 108-11, 1977.

5. Bernick, S.M., Cohen, D.W., Baker, L., Laster, L. Dental disease in children with diabetes mellitus. *J. Periodontol.*, 46: 241, 1975.

6. Klein, A. Die Ueranderung der Mundhöhle während der Menstruation. *Zahnärzte. Rdsch.*, 43: 1531-1539, 1934.

7. Kleinberg, I., Golub, L.M. Gingival crevicular fluid and its use in diagnosis of disease. *Int. J. Dermatol.*, Jan-Feb; 24(1): 37-40, 1985.

8. Pellat, B. Le fluide gingival: données actuelles. *Actual. Odontostomatol.* (Paris), 111: 465-79, Sept. 1975.

9. Kaess, B. Le fluide gingival. *Rev. Belge Med. Dent.*, 28(2): 157-70, 1973.

10. Serres, A. Essai sur l'anatomie et la physiologie des dents, ou nouvelle théorie de la dentition. Paris, Mequignon, Marvis, 1817.

11. Black, G.V. Special dental pathology. Medico-Dental Publishing Co., Chicago, 1915.

12. Brill, N. The gingival pocket fluid. Studies of its occurrence, composition and effect. *Acta Odont. Scand.*, 20, Supplementum 32, 1962.

13. Waerhaug, J. The gingival pocket. *Odont. T., Supplementum* I, 1952.

14. Nagao, N. Influence of prosthetic appliances upon the flow. I. Relation between crevicular tissue fluid and prosthetic appliances. *Bull. Tokyo Med. Dent. Univ.*, 14(2): 241-57, 1967.

15. Oliver, R.C., Holm-Pederson, P., Loë, H. The correlation between clinical scoring exudate measurements and microscopic evaluation of inflammation in the gingiva. *J. Periodont.*; 40: 201-209, 1969.

16. Orban, J.E., Stallard, R.E. Gingival crevicular fluid: a reliable predictor of gingival health? *J. Periodontol.*, 40: 231-5, 1969.

17. Rudin, H.J., Overdisk, H.F., Rateitschack, K.H. Correlation between sulcus fluid rate and clinical and histological inflammation of the marginal gingiva. *Helva. Odont. Acta.*, 14: 21-26, 1970.

18. Kaess, B., Llory, H. Microbiology of the crevicular region and the adjacent dental plaque. Communication présentée à la 8ième réunion annuelle de la L.E.D. de l'I.A.D.R. Genève, septembre 1971.

19. Freidman, S.A., Mandel, D., Herrera, M.S. Lysozyme and lactoferrin quantitation in the crevicular fluid. *J. Periodontol.*, 54: 347-350, 1983.

20. Chambers, D.A., Crawford, G.M., Mukherjee, S., Cohen, L. Aspartrate aminotransferase activity is elevated in crevicular fluid during induced periodontitis in beagle dogs. *J. Periodontol.*, 55: 526, 1984.

21. Brill, N., Krasse, B. The passage of tissue fluid into the clinically healthy gingival pocket. *Acta Odont. Scand.*, 16: 233-245, 1958.

22. Brill, N., Bjorn, H. Passage of tissue fluid into human gingival pockets. *Acta Odont. Scand.*, 17: 11-21, 1959.

23. Lindhe, J. Textbook of clinical periodontology. Chap. 14, p. 336-338.

24. Roy, S. Périodontite juvénile. Une approche de traitement conservatrice. *J. Can. Dent. Ass.*, 51: 85-89, 1985.

25. Turnbull, R.S., Pearson, G.E. The role of spiramycin in the treatment of periodontol disease. *J. Can. Dent. Ass.*, 44: 313-315, 1978.



Children's Hospital of Eastern Ontario
Hôpital pour enfants de l'est de l'Ontario

POSITION VACANT

The Children's Hospital of Eastern Ontario is seeking a specialist in Paediatric Dentistry to be Chief of the Division of Dentistry. The Hospital is a tertiary care children's hospital affiliated with the University of Ottawa. Presently, it is also engaged in post-graduate training of students from the University of Toronto, Faculty of Dentistry. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. Other candidates will be considered if no suitable Canadian candidate is found.

Send application to:
Dr. Hans Heick
Chairman of the Medical Advisory Committee
Children's Hospital of Eastern Ontario
401 Smyth Road
Ottawa, Ontario K1H 8L1

*** OUTIL D'INFORMATION ***

**VIDÉO EN FRANÇAIS
SUR LE
REMPLACEMENT PERMANENT DES DENTS
PAR LA
MÉTHODE BRANEMARK**

L'INVALIDITÉ BUCCALE (\$100.00)

Les Presses de l'Université Laval
Services des ressources pédagogiques
1411 Pavillon de Koninck
Cité Universitaire
Québec, PQ
G1K 7P4
(418) 656-2220



NOBILIUM[®]

QUALITY LABORATORY PRODUCTS WORLDWIDE

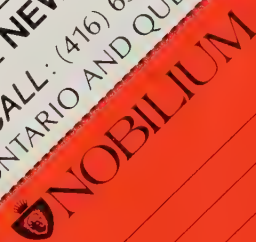
★ QUALITY PROVEN MATERIALS ★
★ EXACTING QUALITY CONTROL ★
★ STRONG TECHNICAL SUPPORT ★

NOBILIUM OFFERS:
A COMPLETE LINE OF "TIME-TESTED" PRODUCTS FOR THE DENTAL
LABORATORY PROFESSION IS AVAILABLE TODAY FROM NOBILIUM[®]
★ LABORATORY EQUIPMENT ★
★ ADA CERTIFIED ALLOYS ★
★ INVESTMENTS ★
★ DUPLICATING MATERIALS ★
★ STIPPLE SHEETS ★

WAXES
ABRASIVES
DENTURE MATERIALS
OUR WORLD FAMOUS NOBILFORMS[®] PLASTIC PATTERNS & STIPPLE SHEETS

AND OF COURSE
OFFERS A COMPLETE LINE OF PRECIOUS AND SEMI-PRECIOUS ALLOYS
FOR THE CROWN AND BRIDGE LABORATORY

MAIL THE COUPON BELOW TODAY FOR YOUR
COPY OF NOBILIUM'S ALL NEW CATALOG AND PRICE LIST
OR CALL: (416) 654-6611
CALL TOLL FREE IN ONTARIO AND QUEBEC: 1-800-268-1860



NAME _____
LABORATORY _____
ADDRESS _____
CITY _____
PROV. & POSTAL CODE _____
TELEPHONE _____

NOBILIUM CANADA INC.
1366 BATHURST STREET
TORONTO, ONTARIO
M5R 3J1

LIQUIDE CRÉVICULAIRE

Partie II: La collection

Jean-François Tessier*

André Lebire*

Serge Roy**, DMD, MScD

Marcel Proulx**, DDS, MScD, MRCD(C)

René-Guy Landry**, DMD, Dipl (Paro), MRCD(C)

RÉSUMÉ

Le liquide créviculaire est un exsudat inflammatoire présent dans le sulcus. Ce liquide créviculaire peut être recueilli de différentes façons. La méthode s'avérant la plus populaire est la bandelette de papier Périotron placée dans le sulcus. Lorsque la bandelette est recueillie, il devient facile d'en déterminer la quantité de fluide. On peut également recueillir le liquide à l'aide de micropipettes ou par lavage utilisant la méthode d'Oppeinhein ou de Skapski et Lehner. La quantification du liquide créviculaire détermine le degré d'inflammation et devient une aide diagnostique intéressante pour le praticien.

ABSTRACT

The crevicular fluid is an inflammatory exudat present in the sulcus. This fluid can be withdrawn with different method. The most popular is the paper strip of Periotron inserted in the gingival sulcus.

We can also withdraw the crevicular fluid with capillary tubes or by washing with the method of Oppeinhein or Skapski and Lehner. The quantification of crevicular fluid is a good way to determine the inflammation and can be helpful for the practitioner.

Introduction

Le liquide créviculaire se décrit comme un exsudat inflammatoire sécrété dans le sulcus gingival. Serres, en 1817,¹ est le premier à soupçonner la présence de glandes sous-gingivales en observant l'accumulation de tartre. G.V. Black, en 1899,² étudie les glandes de Serres et observe qu'elles sont plus profondes que ce dernier l'avait décrit. Aujourd'hui, nous savons que l'exsudat sécrété dans le sulcus n'est pas d'origine glandulaire.

Un flot de liquide constant est noté par Waerhaug (1952).³ Ce liquide sécrété traverse l'épithélium de la poche parodontale et est constitué d'éléments cellulaires et de liquide. Waerhaug, en 1952,³ démontre que le sulcus gingival sain en libère une moins grande quantité, confirmant ainsi que l'inflammation amène une augmentation du liquide créviculaire.

Brill et Krasse, en 1958,⁴ ont injecté à des chiens une solution de sodium fluorescent. En insérant des bandelettes de papier filtre dans le fond du sulcus, ils ont recueilli le liquide créviculaire contenant des traces de sodium fluorescent. Brill, en 1960,⁵ observe également que des irritants, tels le charbon de bois, augmentent le flot de liquide créviculaire permettant ainsi de déloger l'irritant.

Loë et Holm-Pederson, en 1965,⁶ notent que la méthode de Brill produit des dommages tissulaires provoquant la sécrétion de liquide créviculaire dans le sulcus de la gencive saine. Le liquide créviculaire serait donc considéré comme un fluide issu de l'exsudat inflammatoire. Egelberg, en 1966,^{7,8} et Thielade, en 1971,⁹ stimulent la formation de liquide gingival par l'assèchement de la dent à l'aide de la seringue à air.

1. Collection du liquide créviculaire à l'aide de bandelettes de papier

Depuis les travaux de Brill et Krasse en 1958⁴ sur la fluorescine recueillie dans le sulcus à l'aide de bandelettes, la technique n'a cessé de gagner de la popularité. Deux (2) méthodes différentes de collection sont employées: intracraviculaire où

* Étudiants inscrits au programme de doctorat en médecine dentaire, École de médecine dentaire, Université Laval, Ste-Foy, Québec.

** Professeurs à la section de Parodontie, École de médecine dentaire, Université Laval, Ste-Foy, Québec.

le prélèvement s'effectue à trois (3) niveaux différents (au fond, au milieu ou à l'entrée du sulcus) (Landry et Tessier)¹⁰ et extracrémiculaire (Loë et Holm-Pederson, 1965).⁶

a) Évaluation de la quantité du liquide créviculaire

L'évaluation de la quantité de liquide créviculaire peut se faire à partir de quatre (4) méthodes différentes:

1. différence de poids de la bandelette et du capillaire avant et après;
2. coloration de la bandelette avec une solution de ninhydrine;
3. coloration de la bandelette avec la fluorescine;
4. évaluation avec le Périotron 600 ou 6000.

Sueda et al, en 1965,¹¹ évaluent la quantité de liquide créviculaire en mesurant le poids de la bandelette avant de l'introduire dans le sulcus et après la cueillette. Ils combinent deux (2) méthodes parce que, lors de la deuxième pesée, la bandelette est asséchée et colorée avec une solution de 2% de ninhydrine. Le pourcentage de ninhydrine est de 0,2% dans l'étude de Stallard en 1968.¹² Lors de cette dernière étude, le liquide créviculaire est recueilli dans 85 poches parodontales chez 9 patients. Les bandelettes sont asséchées, colorées à la ninhydrine et l'évaluation de la quantité de liquide créviculaire est faite en mm². La méthode est reprise par Orban et Stallard en 1969¹³ qui utilisèrent des bandelettes de 1 mm de largeur. Certains auteurs dont Kaslick et al.¹⁴ (1971) n'assèchent pas les bandelettes avant de les colorer.

Siegel et al, en 1972,¹⁵ font le point sur cette technique et conclurent que:

1. les bandelettes avec une grande échelle d'absorption sont préférables;
2. un séchage à chaud des bandelettes évite une diffusion passée le point limite; on doit assécher et colorer ensuite;
3. utiliser une solution alcoolique de ninhydrine plutôt qu'une solution diluée dans l'eau.

La dernière méthode pour faire l'évaluation de la quantité de liquide créviculaire a été développée par Harco Electronics avec le Périotron 600 et plus récemment le Périotron 6000.

Biswas et al, en 1977,¹⁶ se servent du Périotron 600 pour une étude chez 43 enfants. Tsuchida et Hara, en 1981,¹⁷ font des observations sur la signification du liquide créviculaire encore à l'aide du Périotron 600. Tew et al, en 1985,¹⁸ emploient le Périotron 6000 dans le but

de déterminer une relation entre la concentration d'anticorps dans le sérum et le liquide créviculaire chez des patients atteints d'une parodontite juvénile ou d'une parodontite sévère. Ebersole et al, en 1985,¹⁹ se servent du Périotron 6000 préalablement calibré avec du sérum.

Suppipat et al, en 1977,²⁰ observent que la localisation de la bandelette entre les mors du Périotron 600 affecte la lecture; les valeurs sont augmentées lorsque le quart ou la moitié de la bandelette est introduite tandis qu'elles sont diminuées si la bandelette est insérée totalement ou aux trois-quarts de sa longueur entre les mors. Les valeurs augmentent lorsque la viscosité du liquide et le temps de lecture diminuent. L'augmentation de l'humidité et de la température affecte l'appareil à la hausse.

Garnick et al, en 1979,²¹ étudient le Périotron 600 sous six (6) aspects différents et conclurent que:

1. 0,2 µl de sérum de bovin foetal placé sur une bandelette et introduit dans l'appareil, et ce à plusieurs reprises, donne 5% d'erreur;
2. pour une même quantité de deux liquides différents, on a des lectures différentes;
3. le méthanol et l'éthanol produisent des lectures différentes;
4. 0,2 µl de liquide créviculaire prélevé chez différents patients ne donne pas la même lecture;
5. l'évaluation du Périotron 600 avec des quantités de liquide variant de 0 à 0,6 µl, amène une régression linéaire;
6. l'indice gingival est directement proportionnel à la lecture faite avec le Périotron 600.

Hinrich et al, en 1984,²² s'intéressent à comparer trois (3) systèmes de quantification soit la ninhydrine, le Périotron 600 et le Périotron 6000. Ils évaluent le Périotron 600 et 6000 avec des quantités de sérum, de solution salée ou d'eau qu'ils déposent sur une bandelette pour en faire la lecture avec l'appareil. Les bandelettes lues sont ensuite asséchées et colorées avec la ninhydrine. Hinrich et al conclurent que le Périotron 600 s'avère être un appareil d'une grande précision pour distinguer des liquides différents. Le Périotron 6000 demeure un instrument beaucoup plus clinique car il mesure la quantité de liquide avec précision sans se laisser tromper par la qualité de celui-ci. En 1984, Hinrich et al²³ réenrichissent en concluant la supériorité du Périotron 6000 par rapport au 600 pour ses propriétés cliniques.

Asikainen et al, en 1985,²⁴ étudient différentes bandelettes pour le Périotron 600 et 6000. Ils observent que les bande-

lettes S-690 donnent des lectures de 10% inférieures avec le Périotron 600 et de 20 pour cent inférieures avec le Périotron 6000 qu'avec les bandelettes "Périotron".

b) Débit du liquide créviculaire

On peut assister à des variations de débit du liquide créviculaire dans le temps lors de la collection. Le débit peut varier si l'on est au fond, au milieu ou à l'entrée du sulcus (Landry et Tessier).¹⁰

Bowles et al, en 1971,²⁵ commencèrent leur étude en plaçant des bandelettes à l'entrée du sulcus. Après n'avoir rien recueilli, ils reprennent la collecte en plaçant les bandelettes au fond du sulcus pendant trois minutes. Egelberg, en 1973,²⁶ voit aucun avantage d'être à l'entrée ou au fond du sulcus sauf qu'à l'entrée les variations dans la quantité de liquide recueilli sont moins importantes.

Deux (2) types d'insertion s'affrontent, soit l'insertion des bandelettes aussi loin que possible (Brill, 1960;⁵ Egelberg, 1964²⁷) et l'insertion à l'entrée (Loë et Holm-Pederson, 1965;⁶ Egelberg, 1966;^{7,8} Naito et al, 1984²⁸). Ebersole et al, en 1984,²⁹ n'utilisent pas de seringue à air pour assécher la dent. Ils isolent le site et l'assèchent délicatement avec un coton.

Pour vérifier s'il y a stimulation ou non, Hancock et al, en 1979,³⁰ placent une bandelette à l'entrée durant trois minutes, la retirent et placent une deuxième bandelette au même endroit pour la même durée. Sur leur deuxième échantillon, ils mesurent une plus grande quantité de liquide et arrivent à la conclusion qu'il y a eu stimulation.

c) Contamination par la salive

Pour empêcher la contamination, les dents sont isolées à l'aide de rouleaux de coton et asséchées délicatement avec la seringue à air.

Pour réduire la contamination par la salive, Mann, en 1963,³¹ propose de mettre trois (3) bandelettes côte à côte (après avoir asséché et isolé la dent) au niveau buccal jusqu'au fond du sulcus pendant trois minutes. Ensuite, il remplace la bandelette du centre par une bandelette de collection qui sera laissée en place pendant cinq minutes.

Sueda et al, en 1965,¹¹ placent de la vaseline au niveau du sulcus des dents à isoler. Tsuchida et al, en 1981,¹⁷ placent une bandelette durant 5 secondes dans le sulcus pour éliminer le liquide en place; 60 secondes plus tard, une autre bandelette est placée pendant trois secondes.

Dans leur étude, Tew et al, en 1985,¹⁸ placent une première bandelette à l'entrée

pendant 30 secondes qui sera ensuite jetée. Une seconde bandelette est placée jusqu'à l'autorétention et analysée à l'aide du Périotron 6000.

d) Évaporation

La perte d'eau par évaporation peut être une source majeure d'erreur dans l'étude de la concentration de différentes substances dans le liquide crévulaire (Hattingh et Ho, 1980;³² Whitford et al, 1981³³).

e) Méthodes de récupération du liquide crévulaire

La récupération du liquide crévulaire s'avère essentielle pour l'étude des anticorps présents (Smith et al, 1985;³⁴ Ebersole et al, 1984,²⁹ 1985;¹⁹ Naito et al, 1984).²⁸ En 1984²⁹ et en 1985,¹⁹ Ebersole et al présentent une méthode de récupération du liquide crévulaire pour l'utilisation lors de l'ELISA. Ils recueillent 0,5 µl de liquide crévulaire à l'aide d'une bandelette Périotron et la quantité est déterminée par le Périotron 6000. La bandelette est placée dans un vial contenant 50 µl de PBS-T et congelée à -20°C. Dans un second temps, la bandelette est placée dans un tube de polyéthylène pour microcentrifugation, lavée avec le 50 µl de PBS-T de la congélation et centrifugée à 13 000 g pendant 30 secondes. Celle-ci est lavée de nouveau trois (3) fois avec la même technique pour obtenir un volume final de 200 µl. Cette méthode est reprise par Smith et al en 1985.³⁴

Naito et al, en 1984,²⁸ récupèrent les bandelettes, les agitent dans du PBS pendant 30 secondes et ajustent la concentration voulue avec le PBS pour les congeler à -70°C.

2. Collection du liquide crévulaire à l'aide de micropipettes

a) Évaluation de la quantité

La méthode de collection du liquide crévulaire à l'aide d'une micropipette est surtout utilisée aux sites où l'on retrouve une grande quantité de liquide. En effet, la méthode consiste à isoler la dent, l'assécher et attendre l'apparition de liquide crévulaire à l'entrée du sulcus. Une micropipette est alors approchée du sulcus gingival pour récupérer le liquide qui s'y trouve.

Pour mesurer la quantité de liquide recueilli, Sueda et al, en 1969,³⁵ emploient des tubes de 1,1 mm de diamètre qu'ils étirent sous la flamme jusqu'à ce que le capillaire ait 0,4 mm de diamètre. L'un des bouts est plié et l'autre chauffé pour éliminer le tranchant. La

dent est alors isolée et asséchée et le liquide crévulaire est recueilli à l'entrée du sulcus. Par la suite, les micropipettes sont placées dans un tube à centrifugation et centrifugées à 3000 rpm pendant cinq minutes. Le liquide crévulaire recueilli peut facilement être mesuré. Demetriou et al, en 1978,³⁶ utilisent la même méthode pour leur étude.

Bickel et Cimasoni, en 1984³⁷ et 1985,³⁸ mesurent la quantité du liquide crévulaire en multipliant le diamètre du capillaire par la hauteur du liquide.

b) Débit du liquide crévulaire

Aucune stimulation faite par l'entrée d'un corps étranger dans le sulcus est produite avec une micropipette. La méthode permet de récolter le liquide à l'entrée (Sueda et al, 1969;³⁵ Shillito et al, 1972;³⁹ Demetriou et al, 1978;³⁶ Mukherjee et al, 1983⁴⁰).

c) Contamination

Pour isoler et assécher la dent, les mêmes méthodes sont employées avec les micropipettes. Toutefois, les micropipettes contaminées par le sang furent éliminées (Holmberg et al, 1971;⁴¹ Mukherjee et al, 1983⁴⁰).

d) Récupération du liquide crévulaire

La récupération du liquide crévulaire se fait par centrifugation. Sueda et al ont mis au point une technique qui consiste à plier la micropipette à un bout et à l'introduire dans un tube qui sera centrifugé à 3 000 rpm pendant 5 minutes (Sueda et al, 1969;³⁵ Demetriou et al, 1978³⁶).

Certaines études furent effectuées à l'intérieur même de la micropipette. Lors d'une étude sur le pH du liquide crévulaire, Bickel et Cimasoni (1985)³⁸ ont mis au point un appareil qui permet d'aller mesurer le pH du liquide crévulaire.

3. Lavage gingival

Dans l'étude des cellules et bactéries du sulcus, le but du lavage gingival consiste à prélever le liquide crévulaire sans affecter l'intégrité des tissus marginaux. Deux (2) méthodes furent mises au point: celle de Oppeinhein en 1970⁴² et celle de Skapski et Lehner en 1976.⁴³

a) Méthode Oppeinhein

L'appareil consiste en une plaque fixée au maxillaire supérieur possédant un espace le long du collet des dents pour permettre le passage d'un liquide. Pour sa fabrication, des empreintes en alginate du haut et du bas sont prises. À l'aide d'un porte-empreinte individuel, une empreinte en

caoutchouc est prise en vue d'une plaque d'acrylique.

La procédure débute par un rinçage à l'eau de la cavité buccale du patient et l'appareil est lavé avec 10 ml de solution physiologique. Le patient porte ensuite la plaque pendant 15 minutes, l'eau physiologique circule à un débit de 54 ml/heure. Le liquide circulant est récupéré et étudié.

b) Méthode de Skapski et Lehner

La dent est isolée à l'aide de rouleaux de coton. On injecte 10 µl de solution physiologique qui seront aspirés dans le sulcus 12 fois à l'aide d'une microseringue Hamilton 50 µl. La méthode de Skapski et Lehner fut utilisée par différents auteurs dont Challacombe et al en 1978.⁴⁴

4. Autres méthodes de collection

D'autres méthodes ont été utilisées pour la collection de liquide crévulaire. Des bandelettes de plastique colorées avec de l'huile de cèdre ont été proposées par Gins et Mattig en 1941,⁴⁵ modifiées par Attström en 1970,⁴⁶ utilisées par Renggli et Regolati en 1972⁴⁷ et par Lange en 1973.⁴⁸

Bowles et al, en 1971,²⁵ utilisent des bandelettes de styroflex. La bandelette est placée dans le sulcus qui est légèrement pressé sur elle. On se sert d'une sonde pour dégager la gencive marginale libre et la bandelette. Cette dernière est alors placée dans l'alcool isopropylique et colorée avec la méthode de Papanicolaou pour être observée sous le microscope.

5. Le volume du liquide crévulaire

Le volume de liquide crévulaire augmente ou diminue suivant différents paramètres.

Alfano et al, en 1976,⁴⁹ stimulent la production de liquide crévulaire par un phénomène osmotique. Ils introduisent dans le sulcus une quantité de PBS combinée à de l'albumine. Ils notent après trois et six heures une augmentation du flot de liquide lorsque comparé au site qui contient uniquement du PBS.

Bowles et al, en 1971,²⁵ mesurent la variation du liquide crévulaire suite à l'application d'une force sur une dent. Pour leur étude, ils appliquent une force sur la centrale supérieure droite (#11) à l'aide d'un arc labial. Des prélèvements sont effectués pendant les trois jours précédant et les trois jours suivant la mise en bouche de l'appareil. Ils notent que le traumatisme induit provoque aucune augmentation du liquide crévulaire.

Dans une étude en 1967, Nagao⁵⁰ conclut que le volume de liquide crévulaire n'est pas augmenté par des couronnes complètes en or-platinum, or 20K, et argent palladium, prouvant que ces matériaux ne sont pas irritants pour les tissus. La mise en place d'une prothèse dentaire amovible n'affecte pas le débit de liquide crévulaire à proximité des crochets. Dans une seconde étude, Nagao, en 1967,⁵¹ observe une augmentation du liquide crévulaire autour des couronnes possédant une facette en résine.

Koth, en 1982,⁵² observe sur patients que les couronnes ont le potentiel de causer l'inflammation ainsi qu'une augmentation de liquide crévulaire. Toutefois, lorsque les mesures d'hygiène sont bien appliquées, on observe aucune augmentation de débit.

Jameson, en 1979,⁵³ fait une étude sur la comparaison du débit de liquide crévulaire sur les dents restaurées et non-restaurées. Il observe une augmentation de liquide crévulaire due à l'inflammation. À la lumière de ses résultats, il affirme que la ligne de finition des dents à restaurer devrait être supra-gingivale sauf lorsque dans les cas où la carie est extensive, les rétentions verticales insuffisantes ou l'esthétique compromis.

Voulant vérifier la corrélation entre l'inflammation et le volume de liquide crévulaire, Orban et Stallard, en 1969,¹³ notent que l'inflammation est évaluée avec plus de précision avec un indice de plaque qu'avec le liquide crévulaire.

Hancock et al, en 1979,³⁰ observent que le liquide crévulaire augmente avec l'inflammation mais que celui-ci ne constitue pas un excellent moyen pour bien l'évaluer.

Fry, en 1978,⁵⁰ étudie l'effet de la brosse à dents sur la quantité de liquide crévulaire et conclut que le brossage n'a pas d'effet sur celui-ci.

Conclusion

La thérapie parodontale et la mesure du liquide crévulaire peuvent être associées l'une à l'autre. Les effets répétés de la prophylaxie dentaire influencent favorablement d'une part l'accumulation de la plaque dentaire et, d'autre part, le débit du liquide crévulaire (Gwinnett et al, 1978⁵⁵).

La quantification du liquide crévulaire comme mesure du degré de l'inflammation est une alternative plus que louable lorsque comparée aux indices conventionnels, sa plus grande qualité restant l'objectivité et sa reproductibilité tant au niveau du cabinet du clinicien qu'en recherche clinique.

Avec une instrumentation peu compliquée (Périotron 6000), l'opérateur détermine la quantité de liquide crévulaire recueilli et, d'après les résultats, peut évaluer la santé gingivale du patient et apprécier les résultats de son traitement. Le Périotron 6000 a été évalué cliniquement et est jugé être un outil de diagnostic (Bickel et Cimasoni, 1984,³⁷ 1985³⁸). Δ

Demandes de tirés à part:
René-Guy Landry
École de médecine dentaire
Université Laval
Ste-Foy, QC
G1K 7P4

Bibliographie

1. Serres, A. Essai sur l'anatomie et la physiologie des dents, ou nouvelle théorie de la dentition. Paris, Mequignon, Marvis, 1817.
2. Black, G.V. The fibers and glands of the periodontal membrane. *Dent. Cosmos*, 44: 101, 1899.
3. Waerhaug, J. The gingival pocket. Anatomy, pathology, deepening and elimination. *Odont. T.*, 60: Suppl. I, p. 1-186, 1952.
4. Brill, N., Krasse, B. The passage of tissue fluid into the clinically healthy gingival pocket. *Acta Odont. Scand.*, 16: 223-245, 1958.
5. Brill, N. Gingival conditions related to flow of tissue fluid into gingival pockets. *Acta. Odont. Scand.*, 18: 421-446, 1960.
6. Loë, H., Holm-Pederson, P. Absence and presence of fluid from normal and inflamed gingiva. *Periodont.*, 3: 171, 1965.
7. Egelberg, J. Permeability of the dento-gingival blood vessels. I. Application of the vascular labeling method and gingival fluid measurements. *J. Periodont. Res.*, 1: 180, 1966.
8. Egelberg, J. Permeability of the dento-gingival blood vessels. II. Clinically healthy gingiva. *J. Periodont. Res.*, 1: 276, 1966.
9. Theilade, J. et al. Vascular permeability to colloidal carbon in chronically inflamed gingiva. *J. Periodont. Res.*, 6: 100, 1971.
10. Landry, R.G., Tessier, J.F. Publication à venir. 1987.
11. Sueda, T., Imagawa, Y., Araya, S. Tissue fluid flowing into gingival pocket. *Bull. Tokyo Med. Dent. Univ.*, 12(1): 159-67, 1965.
12. Stallard, R.E. Periodontal microcirculation and the gingival crevicular fluid. *Parodontol. Acad. Rev.*, 2(1): 34-45, 1968.
13. Orban, J.E., Stallard, R.E. Gingival crevicular fluid: a reliable predictor of gingival health? *J. Periodontol.*, 40(4): 231-5, 1969.
14. Kaslick, R.S., Chasens, A.I., Bressman, E., Lazzara, R., Egitto, J. Investigation of periodontitis with periodontitis: ultramicroanalysis of gingival fluid, gross examination of the periodontal ligament and approach to treatment. *J. Periodontol.*, 42(7): 428-34, 1971.
15. Siegel, K.L., Mandel, I.D., Fine, D. The measurement of gingival fluid. *J. Periodontol.*, 43(11): 682-4, 1972.
16. Biswas, S., Duperon, D.F., Chebib, F.S. Study of crevice fluid in relation to periodontal disease in children. II. Effect of age, sex and gingival inflammation on crevice fluid protein, carbohydrate, total calcium, phosphate and nitrogen. *J. Periodont. Res.*, 12(4): 265-78, 1977.

17. Tsuchida, K., Hara, K. Clinical significance of gingival fluid measurement by Periotron. *J. Periodontol.*, 52(11): 697-700, 1981.
18. Tew, J.G., Marshall, D.R., Burmeister, J.A., Ranney, R.R. Relationship between gingival crevicular fluid and serum antibody titers in young adults with generalized and localized periodontitis. *Infect. Immun.*, 49(3): 487-93, 1985.
19. Ebersole, J.L., Taubman, M.A., Smith, D.J. Gingival crevicular fluid antibody to oral microorganisms. II. Distribution and specificity of local antibody responses. *J. Periodont. Res.*, 20(4): 349-56, 1985.
20. Suppipat, N., Suppipat, N. Evaluation of an electronic device for gingival fluid quantitation. *J. Periodontol.*, 48(7): 388-94, 1977.
21. Garnick, J.J., Pearson, R., Harell, D. The evaluation of the Periotron. *J. Periodontol.* 50(8): 424-6, 1979.
22. Hinrich, J.E., Bandt, C.L., Smith, J.A., Golub, L.M. A comparison of 3 systems for quantifying gingival crevicular fluid with respect to linearity and the effects of qualitative differences in fluids. *J. Clin. Periodontol.*, 11(10): 652-61, 1984.
23. Hinrich, J.E., Bandt, C.L., Smith, J.A. Relative error (variability) associated with an improved instrument for measuring gingival crevicular fluid. *J. Periodontol.*, 55(5): 294-8, 1984.
24. Asikainen, S., Etemadzadeh, H., Ainamo, J. Reliability of standardized narrow strips in the Periotron. *J. Periodontol.*, 56(11): 686-9, 1985.
25. Bowles, D., Mühlemann, H.R. Effects on gingival fluid of periodontal ligament trauma. *Helv. Odontol. Acta.*, 15(1): 58-60, 1971.
26. Egelberg, J., Attström, R. Comparison between orifice and intracrevicular methods of sampling gingival fluid. *J. Periodont. Res.*, 8(6): 384-8, 1973.
27. Egelberg, J. Gingival exudate measurements for evaluation of inflammatory changes of the gingivae. *Odont. Rev.*, 15: 381-398, 1964.
28. Naito, Y., Okuda, K., Takazoe, I. Immunoglobulin G response to subgingival gram-negative bacteria in human subjects. *Infect. Immun.*, 45(1): 47-51, 1984.
29. Ebersole, J.L., Taubman, M.A., Smith, D.J., Goodson, J.M. Gingival crevicular fluid antibody to oral microorganisms. I. Method of Collection and analysis of antibody. *J. Periodont. Res.*, 19(2): 124-32, 1984.
30. Hancock, E.B., Cray, R.J., O'Leary, T.J. The relationship between gingival crevicular fluid and gingival inflammation. A clinical and histologic study. *J. Periodontol.*, 50(1): 13-9, 1979.
31. Mann, W.V. The correlation of gingivitis, pocket depth and exudate from the gingival crevice. *J. Periodont.*, 34: 379-387, 1963.
32. Hattings, J., Ho, E. The concentration of proteins in human gingival crevicular fluid. *J. Periodont. Res.*, 15: 90-95, 1980.
33. Whitford, G.M., Pashley, D.H., Pearson, D.E. Fluoride in gingival crevicular fluid and a new method for evaporation water loss correction. *Caries Res.*, 15: 399-405, 1981.
34. Smith, D.J., Gadalla, L.M., Ebersole, J.L., Taubman, M.A. Gingival crevicular fluid antibody to oral microorganisms. III. Association of gingival homogenate and gingival crevicular fluid antibody levels. *J. Periodont. Res.*, 20(4): 357-67, 1985.
35. Sueda, T., Bang, J., Cimasoni, G. Collection of gingival fluid for quantitative analysis. *J. Dent. Res.*, 48(1): 159, 1969.
36. Demetriou, N., Drikos, G., Bambionitakis,

- A. Relation between gingival fluid and mixed and parotid salivary IgA. *J. Periodontol.*, 49(2): 64-6, 1978.
37. Bickel, M., Cimasoni, G. Reliability of volume measurements with the new Periotron 6000. *J. Periodont. Res.*, 19: 313-316, 1984.
38. Bickel, M., Cimasoni, G. The pH of human crevicular fluid measured by a new microanalytical technique. *J. Periodont. Res.*, 20(1): 35-40, 1985.
39. Shillito, E.J., Lehner, T. Immunoglobulins and complement in crevicular fluid, serum and saliva in man. *Arch. Oral Biol.*, 17(2): 241-7, 1972.
40. Mukherjee, S., Das, A.K., Patel, M.K. A longitudinal study of crevicular fluid in periodontal disease in beagles. Clinical, histopathological and biochemical observations. *J. Periodont. Res.*, 18(5): 501-15, 1983.
41. Holmberg, K., Killander, J. Quantitative determination of immunoglobulin (IgG, IgA and IgM) and identification of IgA-type in the gingival fluid. *J. Periodont. Res.*, 6(1): 1-8, 1971.
42. Oppenheim, F.G. Preliminary observations on the presence and origin of serum albumin in human saliva. *Helv. Odont. Acta.*, 14: 10-17, 1970.
43. Skapski, H., Lehner, T. A crevicular washing method for investigating immune components of crevicular fluid in man. *J. Periodont. Res.*, 11: 19-24, 1976.
44. Challacombe, S.J., Russell, M.W., Hawkes, J. Passage of intact IgG from plasma to the oral cavity via crevicular fluid. *Clin. Exp. Immunol.*, 34(3): 417-22, 1978.
45. Gins, H.A., Mattig, G. Ein Verfahren zur 'topographischen' mikroskopie des Zahnfleischsaumes. *Zentbl. Bakt.*, 146: 189-194, 1941.
46. Attström, R. Presence of leukocytes in crevices of healthy and chronically inflamed gingivae. *J. Periodont. Res.*, 5: 42-47, 1970.
47. Renggli, H.H., Regolati, B. Intracrevicular sampling of leukocytes using plastic strips. *Helv. Odont. Acta.*, 16: 93-99, 1972.
48. Lange, D.E. Messing der Sulcusflüssigkeit und bewertung ihres Zellgehaltes als diagnostische Massnahme. *Dt. Zahnärztl. Z.*, 28: 252-258, 1973.
49. Alfano, M.C., Brownstein, C.N., Chasens, A.I., Kaslick, R.G. Passively generated increase in gingival crevicular fluid flow from human gingival. *J. Dent. Res.*, 55(6): 11-32, 1976.
50. Nagao, N. Influence of prosthetic appliances upon the flow of crevicular tissue fluid. I. Relation between crevicular tissue fluid and prosthetic appliances. *Bull. Tokyo Med. Dent. Univ.*, 14(2): 241-57, 1967.
51. Nagao, N. Influence of prosthetic appliances upon the flow of crevicular tissue fluid. II. Crevicular tissue fluid followed up after the insertion of prosthetic appliances. *Bull. Tokyo Med. Dent. Univ.*, 14(2): 259-66, 1967.
52. Koth, D.L. Full crown restorations and gingival inflammation in a controlled population. *J. Prosthet. Dent.*, 48(6): 681-5, 1982.
53. Jameson, L.M. Comparaison of the volume of crevicular fluid from restored and non-restored teeth. *J. Prosthet. Dent.*, 41(2): 209-14, 1979.
54. Fry, H.R. The effect of intrasulcular tooth-brushing on the amount of sulcular fluid. *J. Periodontol.*, 49(10): 538-41, 1978.
55. Gwinnett, A.J., Golub, L.M., Kleinberg, I. The use of ultraviolet photography and crevicular fluid flow rate in the evaluation of an amine fluoride dentifrice. *J. Prev. Dent.*, 5: 19-24, 1978.



Putting Determination to Work.

Jim Wolfgang of Nanaimo, B.C., was diagnosed with multiple sclerosis at the peak of his career with the International Brotherhood of Electrical Workers. His determination to fight the disease so impressed his colleagues it led to their support of the Multiple Sclerosis Society on a national basis. Today the IBEW plays a vital role in fund-raising and special events.

Although MS has forced Jim into retirement, his determination is as strong as ever. It's the kind of determination typical of people with MS. The kind that deserves your help.

**PLEASE... SUPPORT THE
MULTIPLE SCLEROSIS
SOCIETY OF CANADA.**
You'll never know how good
it feels to be a volunteer
until you try it.

Multiple Sclerosis

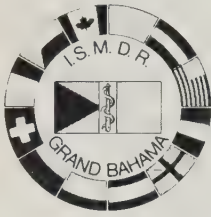
Please check appropriate box & mail to: Multiple Sclerosis Society of Canada
250 Bloor St. East, Suite 820,
Toronto, Ontario M4W 3P9

- ☐ I would like more information about MS
☐ I would like more information about becoming a volunteer.

Name _____

Address _____

_____ Postal Code _____



SIXTH INTERNATIONAL POSTGRADUATE SEMINAR FOR DENTISTS

Date October 17 – 21st, 1988.
(following ADA/FDI Convention in Washington, D.C.)

Location Atlantik Beach Hotel,
FREEPORT, Grand Bahama.

Topics

- * Cosmetic Dentistry.
- * Dental Implant Systems
- * Cranio-Mandibular Dysfunction
- * AIDS and Dentistry.

Information Dr. J. Hardie,
Chief, Department of Dentistry,
Ottawa Civic Hospital,
1053 Carling Ave.,
Ottawa, Ontario.
K1Y 4E9.
(613) 725-4084.

HAMILTON CIVIC HOSPITALS 12 MONTH GENERAL DENTISTRY ROTATING INTERNSHIP July 1, 1989 to June 30, 1990

Experience in all aspects of Hospital Dentistry
in 450 bed teaching,
tertiary care facility.

for information and application please write:

Dr. E.G. Woodward
Vice President, Hamilton General Hospital
237 Barton Street East
Hamilton, Ontario
L8L 2X2



**DON'T
LEAVE
YOUR
PATIENTS
IN THE
DARK**

CANADIAN DENTAL ASSOCIATION

Light up the right issues, concerns and information in your office with patient education materials from the Canadian Dental Association.

The CDA's new 8 page catalogue, with an easy-to-use order form provides one convenient source for its brochures, fact sheets, posters, buttons, stickers and more.

*Write or phone today for your **free** catalogue!*

Order Section
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6 (613) 523-1770

and
tions

elen
or interview
45-9106
ext. 320
744G

TOWNSHIP OF

RTMENT
ENT

HELP WANTED

Active dental office requires full-time person to assist Dentist.

Duties include:

- Keeping dentist informed of government actions affecting dentistry in Canada.
- Educating patients about dentistry and increasing their awareness of the benefits of good oral hygiene.
- Providing dentist with comprehensive, up-to-date resource material.
- Maintaining contact between dentist and colleagues across Canada.
- Ensuring employees meet national standards of education.
- Providing advice in the area of financial planning, insurance, and practice management.
- And other duties as may be required from time to time.

Good Benefit Package.
Salary commensurate with qualifications.

TELEPHONE
Mon
ply in
p.m.

TELEPHONE
\$5 hourly
7206.

TELEPHONE
show. Escala
miss the star
for good pro
backs. Call Lo

TELEPHONE sa
incentive bonus
Casual atmosph
weekly. No hold
shift. A positive
telephone manner
234-8546.

TRACTOR trailer o
cense required, ree
1-448-2653.

TR
FULL time counter
St. Laurent shopping

IMMEDIATELY rec
Place de Ville and
person after 2 p
Food Court, 330 S
tario.

TWO full-time
immediately for exp
woman's fashion bou
resumes to Carley's
Bank.

TYPESETTER reg

LABORERS
driving experier
Cleopatra Dr., Nepean.

731-4131

US, mature, for
training. Call between 9 and 4.

YOU COULD PLACE AN AD IN THE PAPER AND HIRE YOUR OWN HELP OR YOU COULD JOIN CDA.

A CDA membership costs only a fraction of what it would cost to hire your own employee to provide the services we do. And the various programs you gain access to as a member of CDA often end up returning you more than your original investment in dues.

CDA.

Full-time help for a one-time fee.



CANADIAN DENTAL ASSOCIATION
1815 ALTA VISTA DRIVE, OTTAWA, ONTARIO, CANADA K1G 3Y6
TELEPHONE (613) 523-1770

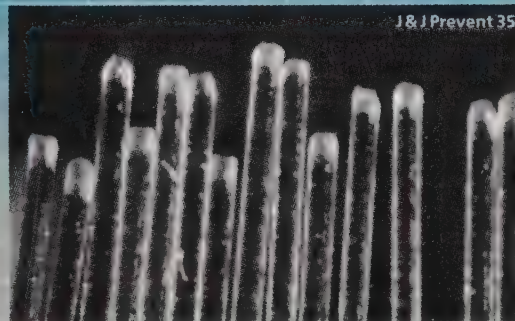
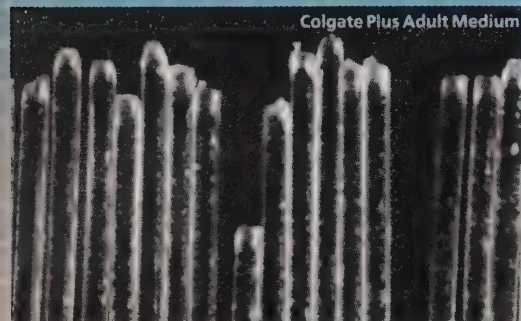
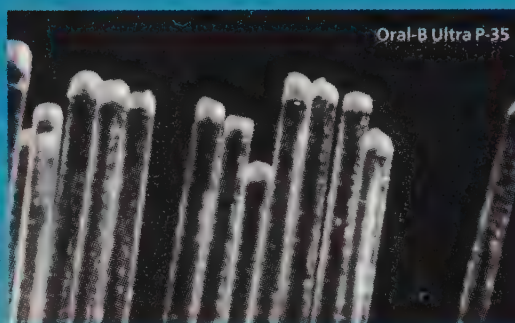
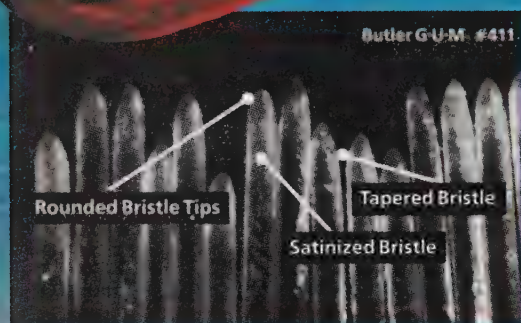
Butler

TAKES THE EXTRA CARE

Only Butler Tapers, Satinizes and Rounds* Toothbrush Bristles For Effective Plaque Removal†

Take a close look — you be the judge!

Unretouched microphotographs of leading toothbrushes show that while some have rounded bristles, none is tapered and satinized like Butler.



Only Butler provides all three bristle processes for more effective plaque removal. It's because we take this extra care that a Butler toothbrush is a more effective brush for your patients.

*C. Mark Gilson, DDS, MS; Gerald T. Charbeneau, DDS, MS; and H. Charles Hill, DDS. All members of the faculty of the University of Michigan School of Dentistry — A comparison of physical properties of several soft toothbrushes.

†Dr. Harald Löe, Director, National Institute of Dental Research — Principles of aetiology and pathogenesis governing the treatment of periodontal disease.

©1988 John O. Butler Company

This advertisement has been reviewed for compliance with the advertising standards of the ADA

Bristle Design Is Important

With any toothbrush it's the bristles that actually remove the plaque.

So the single most important feature of a toothbrush is the effectiveness of its bristles. That's why, in 1967, we originated a process that gave us a bristle designed specifically to remove plaque.

We taper each bristle for extra flexibility without compromising its strength, and at the same time reduce the diameter of the tip. This permits it to reach deeper into the sulcus and interproximally, while the body of the bristle provides the strength needed to displace the plaque. Then the tip is rounded, making it gentle to soft tissue — less likely to cause trauma and bleeding. Finally, we actually texturize the bristle with a process called satinizing. Unlike a smooth, polished bristle that slides through plaque, the satinized bristle picks up and removes plaque better and carries it away.

Special Features Make Butler G-U-M® Toothbrushes Unique

Butler G-U-M® brushes also feature a narrow, rounded head for comfortable access to posteriors and wide, lever-grip handle for easy manipulation in the dental arch.

Studies Prove It Effective in Controlling Gingivitis

Recent studies conducted at the University of Michigan, USA and the University of Berne, Switzerland indicate that the Butler G-U-M® #411 toothbrush actually reduces Gingivitis. The scientific community recognizes that the control of Gingivitis is the most useful approach in preventing the development of periodontitis!

Write for complete catalog and prices.

John O. Butler Company

515 Governors Road
Guelph, Ontario N1K 1C7
Phone: In Guelph 837-2500; in Ontario and Quebec (except area 418) 1 800 265-7177; in all other areas 1 800 265-8353

Butler

Announcements

September/Septembre 1988

September 1-4: 23rd Annual Odontostomatological Session at Hotel Alexander Beach in Alexandroupolis, Greece. For more information, contact: Dr. R. Koxapa-Damigos, Stomatological Society of Greece, Kallirroes 17, Athens 117 43 Greece.

September 4-10: 5th International Week for Dentistry in Istanbul, Turkey. For more details, write: Dr. Ozen Tuncer, University of Istanbul, Faculty of Dentistry, (Dishekimligi Fakultesi), TR-34390 Istanbul — Capa Turkey.

September 5-7: 11th International Conference on Oral Biology in Hong Kong. For more information, contact: International Association of Dental Research, 1111 14th Street NW, #1000, Washington, DC 20005 U.S.A.

September 7-9: Bristol 88 World Dental Conference University of Bristol, England, U.K. Decisions in Forward-Looking Oral Health Care. For information contact: Mr. B.P. Matthews, Bristol 88 World Dental Conference, University of Bristol, Senate House, Bristol BS8 1TH ENGLAND, U.K.

September 12-16: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo, Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

September 15-17: Clindent '88 Clinical Dental Conference in London, England. For details, contact: Clindent '88, 90 Harley St, W1N 1AF London, England.

September 15-18: American Academy of Gnathologic Orthopedics at Caesar's Palace in Las Vegas, Nevada. For more information, contact: Ms. JoAnna Carey, 211E Chicago Ave., Chicago, IL 60611 U.S.A. (312) 642-5834.

September 22-24: Silver Anniversary Celebration of the Canadian Academy of Restorative Dentistry in Edmonton, Alberta. Enquiries should be directed to: Dr. E.W. McIntyre, #68 Meadowlark Park, S.C., Edmonton, Alta T5R 5W9.

September 23-25: American Academy of Esthetic Dentistry at the Hyatt Regency Cambridge in Cambridge, Massachusetts. Contact: Ms. Cheryl Kraus, 211E Chicago Ave., Suite 948, Chicago, IL 60611 U.S.A. (312) 664-2122.

September 23-25: California Dental Association's Fall Scientific Session, San Francisco, California. Contact: Cissie Cooper, Director, Scientific Sessions, CDA, 818 "K" Street Mall, P.O. Box 13749, Sacramento, California, 95853-4749. (916) 443-0505.

September 29–October 1: New Orleans Dental Conference at the New Orleans Hilton, Poydras at the Mississippi River in New Orleans, Louisiana. For more information, contact: Ms. Normalee Ward, 3101 West Napoleon Ave., Suite 119, Metairie, LA 70001 U.S.A. (504) 834-6449.

September 29–October 2: Canadian Academy of Endodontics is holding its annual session at the Fantasyland Hotel, West Edmonton Mall in Alberta. All dentists are welcome. Contact: Dr. Tom Mather, #1107 – 10830 Jasper Ave, Edmonton, Alberta T5J 2B3.

September 29–October 3: American Association of Oral and Maxillofacial Surgeons in Boston, Massachusetts. For information, write: 9700 West Bryn Mawr, Rosemont, Illinois 60018 U.S.A.

October/Octobre 1988

October 2-5: American Academy of Maxillofacial Prosthetics at Stouffers Harborplace Hotel in Baltimore, Maryland. For more details, contact: Dr. Gregory R. Parr, Medical College of Georgia, School of Dentistry, Augusta, GA 30912 U.S.A. (404) 721-2554.

October 4-7: American College of Prosthodontists at Stouffer's Hotel in Baltimore, Maryland. For more details, contact: Ms. Linda Wallenborn, 1777 NE Loop 410, Suite 904, San Antonio, TX 78217 U.S.A. (512) 829-7236.

October 4-7: American Academy of Dental Radiology at the Sheraton Hotel, Washington, D.C. For details, contact: Dr. William Wege, Medical College of Georgia, Augusta, GA 30912 U.S.A. (404) 828-2935.

October 5-7: 51st Annual Meeting of the American Association of Public Health Dentistry in Washington, DC. For information: Dr. R.G. Rozier, Dept. of Health Policy, CB 8140, Kron Building, University of North Carolina, Chapel Hill, NC 27599-8140, U.S.A.

October 6-8: Academy of Dentistry International at the Sheraton-Washington Hotel in Washington, D.C. For information, contact: Dr. Clifford F. Loader, 7804 Calle Espada, Bakersfield, CA 93309 U.S.A. (805) 832-3236.

October 6-9: American Association of Women Dentists at the Grand Hyatt-Washington Hotel in Washington, D.C. For information, contact: Ms. Cheryl Kraus, 211 E. Chicago Ave., Suite 948, Chicago, IL 60611 U.S.A. (312) 337-1563.

October 7: 2nd Annual Bernard Jankelson Memorial Lecture sponsored by the International College of Cranio-Mandibular Orthopedics at the Hyatt Regency, Washington, DC. Jerold J. Principato and J. Michael Dierkes are featured speakers. For details: ICCMO International Headquarters, 830 Marsh & McLennan Building, Seattle, WA 98101 U.S.A.

October 8-14: ADA/FDI Joint 1988 World Dental Congress Dentistry: Caring for the World at Washington, D.C. For more information, contact: Congress Secretariat, ADA/FDI Joint 1988 World Dental Congress, c/o American Dental Association, 211 East Chicago Ave., Chicago, Illinois 60611 USA or FDI Headquarters, Fédération dentaire internationale, 64 Wimpole St., London W1M 8AL, United Kingdom.

October 9-14: International Workshop on Cranio-facial Trauma sponsored by the Australian Cranio-Maxillo-Facial Foundation. For information, contact: Mrs. D. Moody, Executive Officer, 226 Melbourne St., North Adelaide, S.A. 5006, Australia.

October 10-15: American Academy of Implant Dentistry at the J.W. Merriot Hotel in Washington, D.C. For registration information, contact: Mr. John P. Winiewicz, P.O. Box 2002, Abington, MA 02351 U.S.A. (617) 878-7990.

October 12-16: American Society of Dentistry for Children at the Sheraton Bal Harbour, Bal Harbour, Florida. For information: Ms. Lana Wos, 211 E Chicago Ave, Suite 920, Chicago, IL 60611 U.S.A. (312) 943-1244.

October 17-21: Clinical and Radiological Diagnosis of the Temporomandibular Joint in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

October 19-21: Health Education in Action sponsored by Saskatchewan Institute of Applied Science and Technology at the Sheraton, Regina, Saskatchewan. For more information, write or phone: (306) 787-0113, Elaine McNeil, Box 566, Regina, Sask. S4P 3A3.

October 19-21: Annual Conference of the Canadian Society of Forensic Science at the Westbury Hotel in Toronto. Theme: Advances in Technology: The Impact on Forensic Science. For further information, please contact: Canadian Society of Forensic Science, 2660 Southvale Cres, Suite 215, Ottawa, Ont. K1B 4W5 (613) 731-2096.

October 25-27: Medical/Hospitech 88 – 2nd International Medical, Hospital and Dental Equipment and Facilities Exhibition in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 22/F., 151 Gloucester Rd., Hong Kong. Telephone: 5-8326100.

October 26-29: American Academy of Periodontology at the Sheraton Harbor Island Hotel in San Diego, California. Contact: Ms. Jean Pierson, 211 E Chicago Ave, Suite 924, Chicago, IL 60611 U.S.A. (312) 787-5518.

October 26-29: 42nd Annual Meeting of American Academy for Cerebral Palsy and Developmental Medicine Deadline for free papers: February 12, 1988. Royal York Hotel, Toronto. INFO: AACPDM, P.O. Box 11086, Richmond, Virginia 23230 USA.

October 27-31: 23rd Indian Orthodontic Conference followed by Post Conference Workshop at the Manali Hill Resort. For details and registration forms, contact: Dr. Pradip Jayna, Organising Secretary, 23rd I.O.C., M-75, Connaught Place, New Delhi – 110001, India. Phone: 332-9516 or 9517.

October 28-29: Clinical Applications of Osseointegrated Implants sponsored by The Ontario Dental Association in conjunction with the Ontario Society of Oral & Maxillofacial Surgeons at the Sheraton Centre Hotel, Toronto. To register, contact: Professional Development, The Ontario Dental Association, 234 St. George St, Toronto, Ont. M5R 2P1 (416) 922-3900.

October 28–November 1: American Institute of Oral Biology in Palm Springs, California. For details: Dr. Philip J. Boyne, Dept. of Surgery, Loma Linda University Medical Center, Loma Linda, CA 92350 U.S.A. (714) 824-4671.

November/Novembre 1988

November 10-13: Joint Meeting of the Canadian and American Pain Societies in Toronto at the Hilton-Harbour Castle Hotel. For information, contact: Canadian Pain Society, 3655 Drummond St, Room 1202, Montréal, Québec H3G 1Y6.

November 13-16: The Saul Kamen Seminar in the Management and Treatment of the Developmentally Disabled Dental Patient sponsored by the Dept of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center State University of New York at Stony Brook. For further information, please contact: Ann J. Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York 11042 U.S.A. (718) 470-8650.

November 18: Sicher Memorial Lecture sponsored by the Alpha Omega Dental Fraternity at the Westin Bayshore Hotel in Vancouver, BC. "New Horizons in Dentistry" with David Garber. For registration contact: Dr. W.C. (Fred) Weinstein, #515-750 W Broadway, Vancouver, BC V5Z 1H4.

November 20-23: 39th Annual Educational & Scientific Meeting of the Ontario Public Health Association "Equity in Health". For information, contact: Conference Pre-registration, Ontario Public Health Association, 102 Adelaide St E., 2nd floor, Toronto, Ont. M5C 1K9.

Novembre 21-24: Congrès international de l'Association dentaire fran-

çaise et le Festival international du Film et de la Vidéo dentaires à Paris. Renseignements: A.D.F., 92, av. de Wagram, 75017 Paris, France.

November 23-25: Swedish Dental Society in Stockholm Sweden. For information, write: Ms A.C. Nackstad, Nybrogatan 53, S-114 40 Stockholm, Sweden.

November 24: 51st Annual Winter Clinic Toronto Academy of Dentistry at the Metropolitan Toronto Convention Centre, 255 Front Street W, Toronto, Ont. For information, contact the Academy of Dentistry at (416) 967-5649.

November 28–December 2: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

December/Décembre 1988

December: 43rd Indian Dental Association Conference in Pune India. For more information, contact: The Indian Dental Association, 20-A D.B. Road, R.S. Puram, Coimbatore 641 002 India.

December 2: First National Bilingual Low Power Laser Therapy Conference in Ottawa, Ontario. Contact: Ms Lucie Brosseau, Physiotherapy Programme, Health Sciences Faculty, University of Ottawa, 451 Smyth Rd, Ottawa, Ont K1H 8M5.

January/Janvier 1989

January 15-21: Barbados Dental Association Mid-Winter Meeting. For more information, contact: Dr. O.F. Weel, President, Barbados Dental Association, P.O. Box 95, Bridgetown, Barbados.

January 27-29: Dentistry for the Nineties An International Dental Congress sponsored by the College of General Dental Practitioners of Sri Lanka. For details, contact: Dr. L.S.W. Dassanayake, International Dental Congress, College of General Dental Practitioners of Sri Lanka, 439 Elvitigala Mawatha, Colombo 5, Sri Lanka.

February/Février 1989

February 2-4: Expanding Dentistry's Horizons The Miami Winter Meeting sponsored by the East Coast Dental Society at the Hyatt Regency Miami, Florida. For more information, contact: East Coast Dental Society, 420 S. Dixie Highway, Suite 2E, Coral Gables, FL 33146 U.S.A. (305) 667-3647.

February 4: Centennial Ball of the Xi Psi Phi Dental Fraternity at the Royal York Hotel in Toronto. For more information, write: Dr. Don Ducasse, 4211 Yonge St., Suite 204, Willowdale, Ont M2P 2A9.

February 17-21: Annual Convention of the Jamaica Dental Association at Mallard's Beach Hotel, Ocho Rios, Jamaica. For information, contact: Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica W1.

March/Mars 1989

March 16-19: First Asian Congress on Oral and Maxillofacial Surgery organized by the Asian Association of Oral and Maxillofacial Surgeons in Manila, Philippines. Invited speakers include E. Steinhauser (FDR), J. Langdon (UK), Bruce Epker (USA). For further details, write: Congress Secretariat, First Asian Congress on Oral and Maxillofacial Surgery, c/o Philippine Heart Center,

Suite 401, East Avenue, Quezon City 1100, Philippines.

April/Avril 1989

April 10-15: 22nd National Dental Congress of the German Dental Association in conjunction with 111th Annual Meeting of the German Society of Dental, Oral and Orthodontic Medicine and the German Dental Industry Association's International Dental Show in Stuttgart, Germany. Contact: Stuttgarter Mess & Kongress GmbH, Am Kochenhof 16, D-7000 Stuttgart 1, West Germany.

April 12-15: Bundesverband der Deutschen Zahnartze in Killesberg/ Stuttgart, Germany. Contact: Cornelia Hackenbruch, Bundesverband d. Deutschen Zahnartze, Universitätsstr. 73, 5000 Koln 41, Germany.

April 26-30: 14th Asian Pacific Dental Congress at the Korea World Trade Center in Seoul, Korea. For further information, please contact: Secretariat of the 14th APDC, c/o Korean Dental Association, PO Box 41 Youngdeungpo, Seoul 150, Korea Tel: (02) 653-3351/3.

April 27-29: Journées dentaires internationales de Nice-Côte d'Azur in Nice France. For information, write: Dr. Jean-Louis Vidal-Revel, President, Journées dentaires internationales de Nice-Côte d'Azur, 37, av. Villermont, 06000 Nice, France.

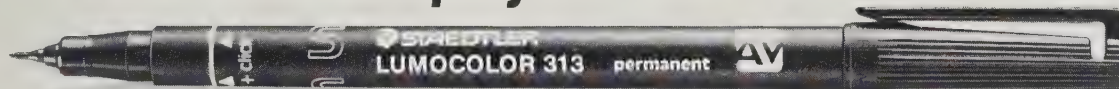
CORPORATION OF THE VILLAGE OF South River

Village of South River requires dentist immediately. Equipped office space provided. Incentive grant available. Excellent living and recreational facilities.

Interested dentists are invited to write or telephone collect to:

Mr. Gerald A. Hall
Clerk-Treasurer Administrator
Corporation of the Village of
South River
209 Ottawa Avenue, P.O. Box 310
South River, Ontario, POA 1X0
(705) 386-2573

What does our projection marker have to do



with your casts and dentures?

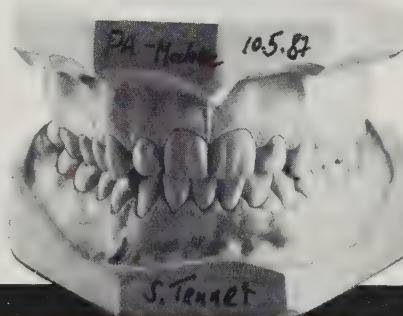
A lot more than you think!

LUMOCOLOR permanent writes on any smooth and glossy surface without spreading or beading. Absolutely indispensable when labelling casts, impressions and dentures, and for marking film or glossy surfaces.

LUMOCOLOR is available in 4 line widths and 8 colours at all leading stationery and drafting supply stores. If a lightfast marker is required use **STAEDTLER PANCOLOR**.



STAEDTLER MARS LIMITED
6 Mars Road, Rexdale, Ontario M9V 2K1



COUPON

Please send me a free sample and more free information on LUMOCOLOR markers.

Name: _____

Company: _____

Address: _____

City: _____

Province: _____

Postal Code: _____

(Offer good while supplies last.)

A37008E /CDN

How BROAD ARE YOUR HORIZONS?

This year the FDI is holding a Joint World Dental Congress with the American Dental Association in Washington, D.C. heralded as the premiere dental meeting of 1988.

If you become an FDI Supporting Member and enroll for the Congress before June 30th, you will make a major saving on the fee.

WASHINGTON, AMSTERDAM, SINGAPORE TRAVEL WITH A PURPOSE

Join dentistry's international fraternity — become a Supporting Member of the Fédération dentaire internationale, your profession's worldwide organization. You will not only help sustain its work for oral health and the practice of dentistry globally, but you will also receive a valuable package of benefits — international dental news, free technical reports, exciting opportunities to travel with a professional purpose, discounts on publications, and membership of that body of dentists distinguished by their international outlook, contacts and knowledge.



WASHINGTON, DC

DENTISTRY:
CARING FOR
THE WORLD

OCTOBER 8-14, 1988

Each year the FDI holds a major world Congress in one of the world's more interesting cities. As well as a top-flight scientific programme, there are social events and travel opportunities, so many participants mix pleasure with business. An FDI Congress is an ideal chance to keep up-to-date with developments within the profession, to meet colleagues from other countries and to see another part of the world, not just as another tourist but as an honoured visitor — an FDI Congress participant.

As an FDI Supporting Member you can get more from your travel while participating more fully in your profession.

For further information on becoming an
FDI Supporting Member
or information on the upcoming
Joint World Dental Congress in Washington, D.C.
please contact the

Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6.

RUN WALK JOG RIDE WHEEL

The 8th annual
**TERRY
FOX
RUN**

Sunday, Sept. 18th

For more information:

Nfld.	(709) 738-1346	Man.	(204) 475-9351
N.S.	(902) 423-8131	Sask.	(306) 757-1662
N.B. & P.E.I.	(506) 648-1809	Alta.	(403) 252-0644
Que.	(514) 499-9747	B.C.	(604) 688-4611
Ont.	(416) 924-8252	N.W.T.	(403) 873-7245

Pledge sheets available at:

CANADIAN
CANCER
SOCIETY

SOCIÉTÉ
CANADIENNE
DU CANCER



Canada Post
Corporation

Société canadienne
des postes

Four Seasons Hotels

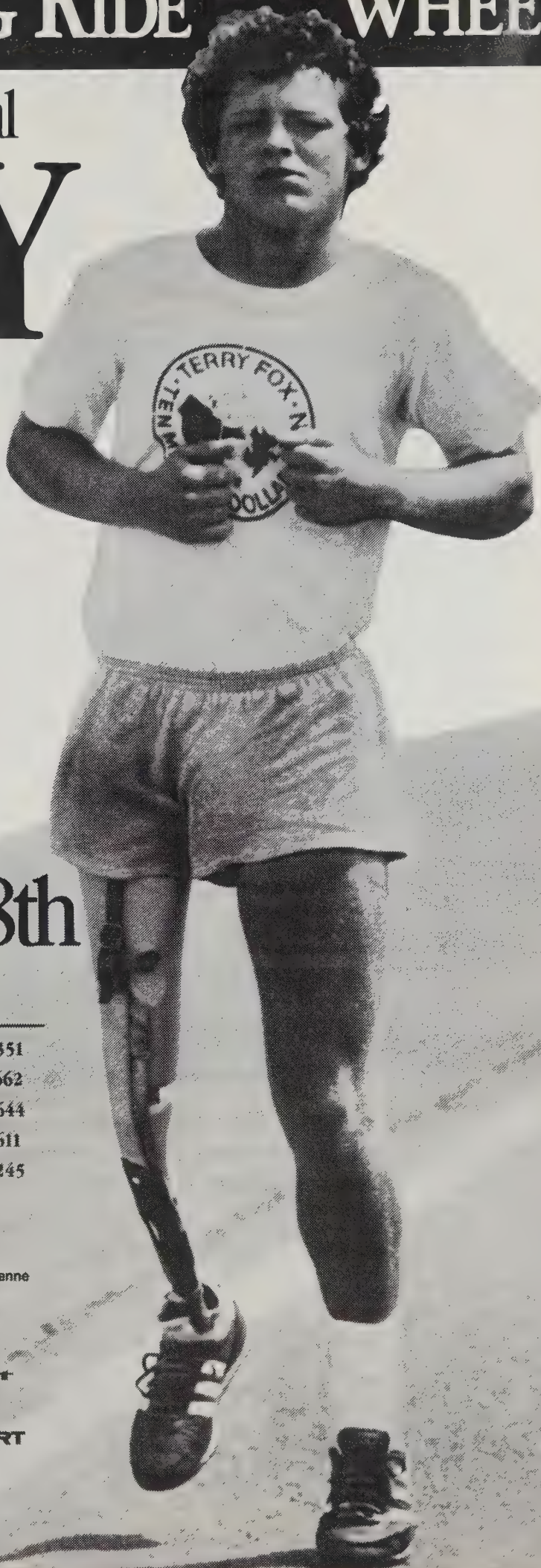
Kentucky
Fried Chicken

Kmart



Scotiabank

SHOPPERS DRUG MART



Eight is enough.



"I've been in practice for over 30 years and plan to retire in eight. Through Tridont, I was able to convert from a single ownership to a partnership arrangement. I'm now able to distribute my ownership among other Tridont dentists and ease into retirement. I don't work for Tridont, Tridont works for me."

— Dr. Irv Mednick — Owner/Operator, Tridont Dental Centre, Weston Centre, Toronto.



Tridont Health Care Inc.
LEADERS IN CANADIAN HEALTH CARE

Tridont can work for you. Call Tim Brown,
our Licensing Representative, Tridont Dental
Centres.

National 1-800-268-8217
Ontario 1-800-268-8589
Toronto 865-9211
... Or call Irv at 416-924-3443

Offices and Practices

BRITISH COLUMBIA—Interior: High gross practice with strong orthodontic components. Located in professional building with reasonable rent. Situated in a scenic recreational area of Nelson, B.C. City's largest employer is the provincial and federal civil service. Must sell. Contact: Mas (604) 352-3223 or 354-4809 or Judi 352-3581.

BRITISH COLUMBIA—Delta: Assure your future now. General family practice established twenty years in the most desirable and prime area of the Lower Mainland. Fantastic weather and beautiful area. Very high gross on only 4 days, 6½ hours a day. Unlimited possibilities to increase the high gross to expand patient flow and all aspects of dental treatment. Unlimited success is up to you. Reply to CDA Box 2414.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

BRITISH COLUMBIA—Victoria: Centrally located, busy, low overhead, 17 years old, general practice for sale. Two modern, fully-equipped operatories. Located with easy access on quiet court-

yard in established neighborhood. Dr. Bill Bassett (604) 384-2043 (bus) or 592-7593 (res).

ALBERTA—Edmonton: A well-established, uptown group practice is seeking a dentist with an established practice. The intent is to increase critical mass; thereby, reducing fixed overhead costs and increasing time off, while maintaining approximately the same net income. Please reply in confidence to CDA Box 2423.

ALBERTA—Red Deer: Very busy, established, three operator general practice for sale. Reasonably priced. Owner retiring. For information in confidence phone (403) 347-3123 (bus) or (403) 343-7130 (res).

ALBERTA—West Central: For sale. Long-established, active, solo family practice. Main street, ground floor location. Three operatories, one newly-equipped. Located in growing, progressive community within easy access to both major cities and the outstanding recreational opportunities in the area. Professional appraisal available. Owner retiring. Contact (403) 845-3133 office or (403) 845-3455 home.

SASKATCHEWAN: Very busy, family-oriented practice for sale in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

SOUTHWEST SASKATCHEWAN: Practice for Sale: "I QUIT!" — My practice has a gross you would not believe. Do you want to take my place? (306) 463-2600 or (306) 463-4403 Call today.

ONTARIO—Amherstburg: Very busy, general practice established 14 years. Excellent gross. Less than 50 per cent overhead, 95 per cent insurance, 3 hygienists, Panorex lab. tech., excellent location. All staff with practice for

many years. Cost-sharing facilities with 2 other dentists. In Canada's "Sun Parlor" on Detroit River/Lake Erie. Excellent golf, boating, fishing, recreational facilities, Windsor 25 minutes, Detroit 30 minutes. House on lake also available. Great opportunity! For details, Dr. Peter Neilson, 1359 Front Rd S, Amherstburg, Ontario. N9V 2M5; (519) 736-4672 after 6:00.

ONTARIO—Ottawa: Solo general practice for sale. Affordable. In professional building with reasonable rent. Compact office with two operatories. Good patient parking. Directly across from major mall. In practice 15 years. Now retiring. Present receptionist willing to stay. Contact: Dr. Edward McDermott (613) 722-4160 (office) (613) 722-5997 (home).

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

ONTARIO—Sudbury District: Seven-year-old family practice for sale. One operator, low overhead, high gross. Good as satellite. Incentive grant available. Phone (705) 437-3821.

SOUTHWEST ONTARIO: Busy, established, family practice for sale in small town. Modern 30' x 50' building, air-conditioned, two well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operator). Excellent income, low overhead. Please call (519) 482-5864.

NOVA SCOTIA—Halifax: Established downtown general practice for sale, located in Purdy's Wharf. Sale includes share of modern equipment, sundries, and term lease of office space. Practice includes a large recall clientele (mostly adult). Suitable for an experienced operator or two graduates. Apply to Box CDA 2327 or in confidence to Dr. Stewart Keddy, 43 Westridge Dr., Halifax B3M 3K3.

NOVA SCOTIA—Lunenburg: Practice for sale in modern medical-dental centre. Includes two fully-equipped operatories and cost-shared facilities such as spacious reception, hygiene, lab, panoramic x-ray facilities. Ideally located next to hospital and close to schools, shopping area and recreation facilities including swimming, golfing, boating, tennis, etc. Just one hour from Halifax. Please reply to: Robert Murray, DDS, P.O. Box 370, Lunenburg, N.S. B0J 2C0 or phone (902) 634-8880 (O) or 624-9966 (H).

Associateships Available

BRITISH COLUMBIA: SECOND ASSOCIATE REQUIRED. Well-established practice in Williams Lake, BC has new full-time opening for second associate to start Summer '88. Present lady associate of 5 years wishes to cut back to 8 days per month. This is a good opportunity to earn a high income based on an established patient flow. Phone (604) 392-2615 (collect) evenings or (604) 398-8633 (collect) days. Ask for Alistair Menzies.

ALBERTA: Associate Position available immediately for busy, rural practice. The latest in new equipment throughout. Possible partnership available after one year. Town of 7500 located 2 hours west of Edmonton. Please reply to CDA Box 2416.

ALBERTA: Pedodontist to associate with opportunity to purchase well-established twenty-five year old practice. Three operatories, pan, rent — \$14.95/sq. ft. × 1193 sq. ft. Reasonable terms to be negotiated to suit purchaser. Call collect (bus) (403) 262-7000.

ONTARIO—Toronto: Oral and Maxillofacial Surgeon wanted to associate with view to a partnership in group practice. Reply in confidence to CDA Box 2417.

SOUTHWESTERN ONTARIO: Oral and Maxillofacial Surgeon. Associate wanted for busy practice in Southwestern Ontario. Position available immediately. Opportunity for full partnership after one year. Call (519) 623-1760.

U.S.A.—New York: WANTED. Pedodontic Associate for exclusive pedodontic group with elite clientele. Modern comprehensive pedodontic practice in upstate New York. Please reply in confidence to CDA Box 2424.

Opportunities Available

BRITISH COLUMBIA—Kootenays: High daily minimum gross in busy solo family practice established 23 years. Excellent staff and recall system, providing all phases of dentistry. Large patient base and steady growth of new patients assures continued success. This city is growing with steady employment and 94 percent dental insurance. I will associate for an introductory period. Purchase for 50 percent of annual gross includes all equipment, supplies, etc. Suitable for experienced dentist or two graduates. (604) 442-5837.

BRITISH COLUMBIA—Prince George: We are inviting enthusiastic, quality-conscious dentists (experienced dentists preferred, new graduate considered) to consider a unique opportunity in a non-traditional environment. We are a large progressive dental group located in Prince George, B.C.'s 2nd largest city. Our schedule is designed to attract local and out of province candidates. We welcome your telephone (collect) inquiries to: Lakewood Dental Group, c/o Elaine David, Mon-Fri (daytime) (604) 562-5551, Evenings or weekends (604) 562-1927.

BRITISH COLUMBIA—Nanaimo, Vancouver Island: Associate-Partner. Excellent opportunity in busy and growing practice in a mall setting. High standard of living with wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply to Dr. Patricia Crosson. Phone (604) 754-1949 days and (604) 468-9892 evenings.

ALBERTA—Edmonton: A well-established, downtown group practice has a locum available for September, October and November 1988. Please reply in confidence to CDA Box 2422.

ONTARIO: Oral & Maxillofacial surgeon associate required for full-scope practice. Knowledge of TMJ, implants, orthognathics and out-patient anesthesia necessary. Reply to CDA Box 2425.

ONTARIO—Toronto: Periodontist required part-time to join with a growing Toronto group general practice. Recently renovated. Stressing prevention, good quality and caring. Congenial and competent staff. Reply to CDA Box 2412.

ONTARIO—Toronto: Oral and Maxillofacial Surgery group requires a part-time associate for office work only. Reply in confidence to CDA Box 2418.

NORTHWESTERN ONTARIO: Dentist position available in mobile school treatment program. Clinic sites located in Kenora-Rainy River district of Ontario. Competitive salary and benefits offered. For more information, contact: Dr. L.W. Armstrong, Director, Preventive Dental Services, Northwestern Health Unit, 21 Wolsley St., Kenora, Ont P9N 3W7 Tel: (807) 468-3147.

Opportunities Wanted

BRITISH COLUMBIA: Practice wanted. Greater Vancouver preferred but very busy rural practice will be considered. Must be progressive, well-established, owned and operated by the seller and have significant potential for future growth. Owner must stay on during transition and practice must be realistically priced. Reply CDA Box 2410.

Advertisers' Index

ALLSEASONS Environmental Control Inc.	600
Ash Temple Limited	594
John O. Butler Company	618
CDSPI	580, 606
The L.D. Caulk Company of Canada	570
The Children's Hospital of Eastern Ontario	609
Corporation of the Village of South River	621
Dalhousie University	598
Hamilton Civic Hospital	616
The Institute for Practice Development	573
Mdici, Inc.	605
Myo-tronics, Inc.	599
Nobelpharma Canada, Inc.	IBC
Nobilium Canada, Inc.	610
Plax	592, 593
Premier Dental (Canada) Inc.	591
Procter & Gamble, Inc.	IFC
Sixth International Post Graduate Seminar	616
Staedtler-Mars Limited	621
Teledyne Water Pik Canada Limited	585
Tridont Health Care, Inc.	624
University of British Columbia	579
University of Toronto	579, 598
Warner Lambert Canada, Inc.	OBC

Canadian Dental Association

CDA Library/Resource Centre

As a service to all members, both dentists and students, and affiliated dental groups the CDA Library/Resource Centre is presently offering the following services. Please note, there are some changes which will involve minimal costs to users, effective **September 1, 1988**:

- ☐ **MEDLINE** literature searches: this computerized information retrieval system provides access to over 3,000 medical and dental journals and produces instant bibliographies of varying length and depth of topic coverage. The Association is accepting collect calls for this service from all members. This is free to members and a minimum charge of \$10.00 to non-members.
- ☐ **SDI**: this is a monthly current awareness bibliography. The requester's original search in MEDLINE is stored in the computer and updates are then sent automatically twelve times a year. This is free to members and \$30.00 a year to non-members.
- ☐ **Copies of contents pages** of the most current dental journals. There is a monthly charge of \$5.00 to non-members for this service and is free to members.
- ☐ **Photocopies** of journal articles. For members there is a flat fee of \$5.00 for up to ten articles; and 10 cents per page thereafter. For non-members there is a charge of \$5.00 per request plus 10 cents per page (plus the cost of articles obtained from other libraries).
- ☐ **Package Libraries**: these are selected articles on topics of interest to the dental community and advertised each month in the Journal. One copy of each article listed is provided in the package at a total cost of \$5.00 for members and \$10.00 for non-members.
- ☐ **General inquiries** on dentally related topics: assistance is provided free of charge.

The Library is open from Monday to Friday
between 8:30 a.m. and 4:30 p.m.

For further information please contact Martha Vaughan, Librarian, at the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6, (613) 523-1770, extension 223.

THE SYDNEY WOOD BRADLEY MEMORIAL LIBRARY
OF THE CANADIAN DENTAL ASSOCIATION

THE DENTAL EMERGENCY SERVICE 1650 YONGE STREET IN TORONTO

This facility, operating 16 hours every day and treating only emergencies, has been in operation in Toronto since 1978. It has an established reputation of service to the public and to the profession. The owners, recognizing that the Service would benefit from more direct attention than they are able to give it, will entertain offers to purchase from dentists only.

For an outline prospectus, please write

Drs H. MacKay and A. Schmitt
39 Pleasant Boulevard
Toronto, Ontario M5T 1K2

JOURNAL OF THE CANADIAN DENTAL ASSOCIATION --- JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

1988 SUBSCRIPTION RATES (VOLUME 54)

CANADA	\$42.00
UNITED STATES	\$44.00
FOREIGN	\$46.00

Please note all subscriptions must be prepaid, preferably in Canadian Funds.

Please direct inquiries to:

Jennifer McClinton, Journal Production Assistant
Journal of the Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
CANADA K1G 3Y6

Share Our Confidence

and join us in celebrating the Rights of the Child.



*The Rewards
are Terrific!*

This week, let's think about how we can bring about
These Rights
as quickly as possible

Affection,
love and understanding

Adequate nutrition
and medical care

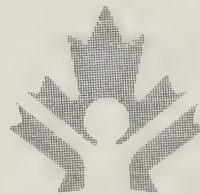
An education

Full opportunity
for play and recreation

A name and nationality

Special care, if handicapped

Priority for relief
in time of disaster



The Canadian
Save the Children
Fund

Learn to be a useful
member of society and to
develop individual
abilities

Be brought up in
a spirit of peace and
universal brotherhood

Enjoy these rights
regardless of race, colour,
sex, religion, national
or social origin

Save the Children

National Headquarters

720 Spadina Avenue, Toronto, Ontario M5S 2W3 (416) 960-3190

Contact your local branch for activities in your community.

Doctor . . . A Moment of Your Time

Reach every dentist and dental student in Canada

Over 14,000 dentists and 1,600 dental students read the Journal of the Canadian Dental Association every month. The Journal has a section exclusively for you — the Marketplace. Whether you are buying a practice, selling a practice, or looking for an associate, we are here to give you the best exposure possible.

Dentists who do not get the response they anticipated after running their paid advertisement twice will receive one placement of their ad at no charge.

CLASSIFIED ADVERTISEMENTS

The classified advertising department of the Journal of the Canadian Dental Association is published as a service to the dental profession. Rates are minimal. Therefore, even on display classified advertisements, no agency commission is payable.

CLASSIFIED ADVERTISING RATES

50 words or less, per ad (minimum) \$30.00 plus 50¢ for each additional word. Box number \$5 per insertion. All ads must be prepaid. (Cheque or money order). NO AGENCY COMMISSION PAYABLE. Closing date is first day of month preceding month of issue. No cancellation or copy changes after closing date. Ads not accepted over telephone. The Journal reserves the right to reject or edit advertisements that do not conform to Journal requirements.

DISPLAY CLASSIFIED RATES

Half page and quarter page ads only. Commercial advertisers do not qualify. One time rate only: half page vertical or horizontal \$500.00, quarter page \$315.00. Payable in Canadian funds.

Replies to CDA box numbers should indicate box number on envelope. Names and addresses of box number advertisers will not be revealed.

The Journal of the Canadian Dental Association neither investigates the offers made in these advertisements nor assumes any responsibility for them.

Write: Journal, Classified Advertising Dept.
Attention: Jennifer McClinton
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID

AMOUNT OF CHEQUE ENCLOSED: _____

by Jean Cives

Phone Fun

I have recounted my adventures with a lost telephone socket, and promised a gripping end to the tale. So here it begins. I went to the phone store to return two phones. I love phones. I have them all over the house. I have put in my own sockets. I am the domestic despair of the phone company. On one occasion, a carpenter and I were adjusting, at my insistence, the kitchen floor. At that time I had made a bit of a mistake with a piece of string and had measured it the wrong way. I ended up with a kitchen which only needed basketball hoops at either end. "What a lovely. . . .family (?)room!" visitors would say, as if 20 children in runners and with "Celtics" on their shirts were going to appear. But there was a bump between old and new floor. As a corrective measure, my crazed carpenter decided to let the whole side of the house down. This he did. The next day the walls were still vertical and the ceiling chiefly horizontal so all was well. But the phone was kaput. Call the Company. A mildly amused phone man pointed out that we had dropped the wall onto the telephone line which, when squashed, did not even let squeaky-thin signals through. On another occasion a phone man pointed skeptically and scornfully at a nail I had driven through the line. On yet another occasion, I left the phone in the basement off the hook. A nice phone man, who visited by request pointed this out and suggested they do not work that way.

So, I went to the mall where shoppers go to stare in shop windows without being fried, frozen, rained upon, or blown down the street (normal trans-Canadian weather 10 months of the year). I went to the phone shop, clutching two phones. The lady citizen in charge, looked in her computer screen, then snatched one of my phones and hid it! She said I only had one phone, and so "This one" — whisked away — was theirs. This was declaimed in loud tones to all the busy shoppers who paused and looked hard and disgusted-like at a famous phone thief. "Not yours,

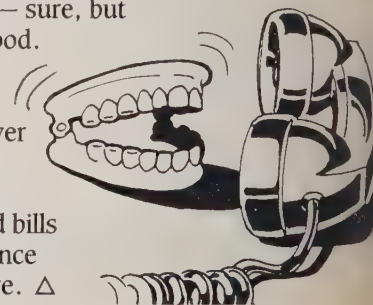


but ours!" she cried. I said that one did not work, which was true. I lost the famous cool. She coldly gave me a new phone which I did not want, and I left hastily for fear they would tie a notice around my neck — "Famous Phone Thief, observe and adjure from such felonies". My lady companion had suddenly found an intense interest in the adjacent wool shop, and there avowed never to be seen in public with me again!

But then, as previously recounted, I changed the phones in my office. Mr phoneman looked at his piece of paper and observed kindly that he could not find the phone listed as in the office. "Thundering balls of fire" I cried, "That's the damn phone I took back to them as having been in my house." Now colleagues, I have your sympathy. This little oversight I have hinted at before. What paraphernalia is in the office is sometimes dreadfully sticky and clings to the body somewhat, being that way unconsciously transported home. Mr. R. Canada sighs. He remembers the Orthodontist with written off furniture which if put in the office, would fill it from top to bottom and side-to-side. It cost Dr. Wireband about \$40,000 I am told, to take away the pain at Revenue C. Here was I,

doubly indicted — felonious phone, and no phone where phone should be. No phone even to return! I decided to throw myself upon the mercy of the charming ladies of the phone company. I really do prefer ladies to fellows, the chaps all talk about the same things as I like to boast about — a lovely bridge, a charming partial, a big car, a banker outwitted, a buck made, that sort of stuff. The ladies listen; they do not produce even better lies. So I extended total charm per wire to H.Q.-phones. I asked if they ever had calls from confused fellows who screwed up phone-wise. Did they ever have lunatics whose affairs confirmed the diagnosis of mentally phonally incompetent. She allowed that such do call from time to time. But nobody lately. He is here, I assured her. It is now. I have returned a phone which was mine but, at the same time, was not mine. A bit existentialist, I opined. She agreed. Confusion I told her, and now was the time for all to move forward together into a brave new world where phones had owners, and owners had phones. "Perhaps", she allowed. I said that by a quirk of circumstances I had rippled the surface of the system, and regret was my only emotion. No need to call a lawyer, no need to call Revenue C but quite a simple mistake if mildly on the dishonest side, had occurred.

If, I told her, I confessed publicly to these sins — sort of medieval type behaviour — and sent the phone company a copy of all this phone felony and foolishness, would they forgive me, a humble sinner. Never again, well hardly ever. The signal came back on the beloved wire — sure, but it better be good. I hope this is, or I will be damned forever to buzzing lines, wrong numbers, and bills for long distance calls to Lahore. Δ





*Brånemark
System*

Single Tooth Replacement

a unique design for implant dentistry



Now, you can offer your patients the perfect alternative to conventional bridgework...a permanent tooth replacement system where adjacent healthy teeth do not have to be incorporated in the restorative procedure. A system where you now have the freedom to create the esthetic results both you and your patients demand. A system that you can rely on!

How? With the Nobelpharma System single tooth abutment.

- hexagonal design prevents rotation
- precision machined titanium to ensure consistent fit
- fully retrievable

**OFFER YOUR PATIENTS THE BEST...THE
BRANEMARK SYSTEM.**

Call us at **1-800-268-1189** for full details on how you can incorporate the BRANEMARK System in your practice.

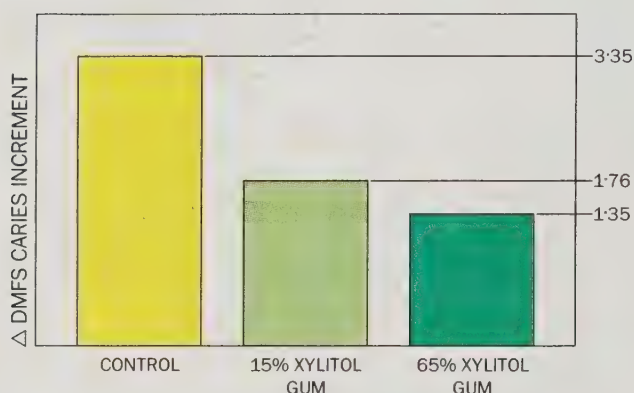
 **Nobelpharma**

Nobelpharma Canada Inc.
1235 Bay St., Suite 902,
Toronto, Ontario, Canada, M5R 3K4
Telephone (416) 961-1555
Toll Free 1 (800) 268-1189
Telefax (416) 961-4106

Now, new studies prove that Trident with **xylitol** helps fight cavities.

Xylitol is a naturally-occurring sweetening agent found in plants, vegetables, even the human body. For years, scientists have suspected that this natural substance may play an active role in cavity prevention. Now, new clinical studies prove it.

Independent trials¹ conducted by international



This one-year study conducted by the Montreal General Hospital and the University of Montreal, Department of Preventive and Community Dentistry, on 433 eight and nine year old Montreal children clearly demonstrates a protective effect of xylitol-containing chewing gum in a school caries preventive programme. (The control group had a normal diet and preventive programme.)

institutions such as the World Health Organization have substantiated existing evidence, gathered through concentrated research over the last ten years, that indicates xylitol cannot be metabolized by decay-causing microflora in the oral cavity.

Trident Sugarless Gum, which contains xylitol², is now being recognized as more than just a harmless treat. When used at least twice a day, it has been proven to be an important adjunct to the regular oral hygiene programme of brushing, flossing, rinsing, and having fluoride treatments plus biannual dental check-ups.

Now, you can recommend Trident as an effective way to reduce the threat of acidogenic action after carbohydrate snacking, especially for young, caries-prone patients. And, the great new taste of Trident means that patient compliance is assured.

Trident. More than just a treat.



MORE THAN JUST A TREAT

¹ Reg. T.M. Warner-Lambert Company, Adams Brands Mfg. Auth. User.

²The Finnish Xylitol Study, 1982-1985. The French Polynesian WHO Study, 1979. The WHO Hungarian Study, 1981-1984. The Montreal Chewing Gum Study, 1987. Case studies available upon request.

³Trident Peppermint, Cinnamon, Freshmint, and Fruit flavours only.

September
Septembre
1988
Vol. 54
No. 9

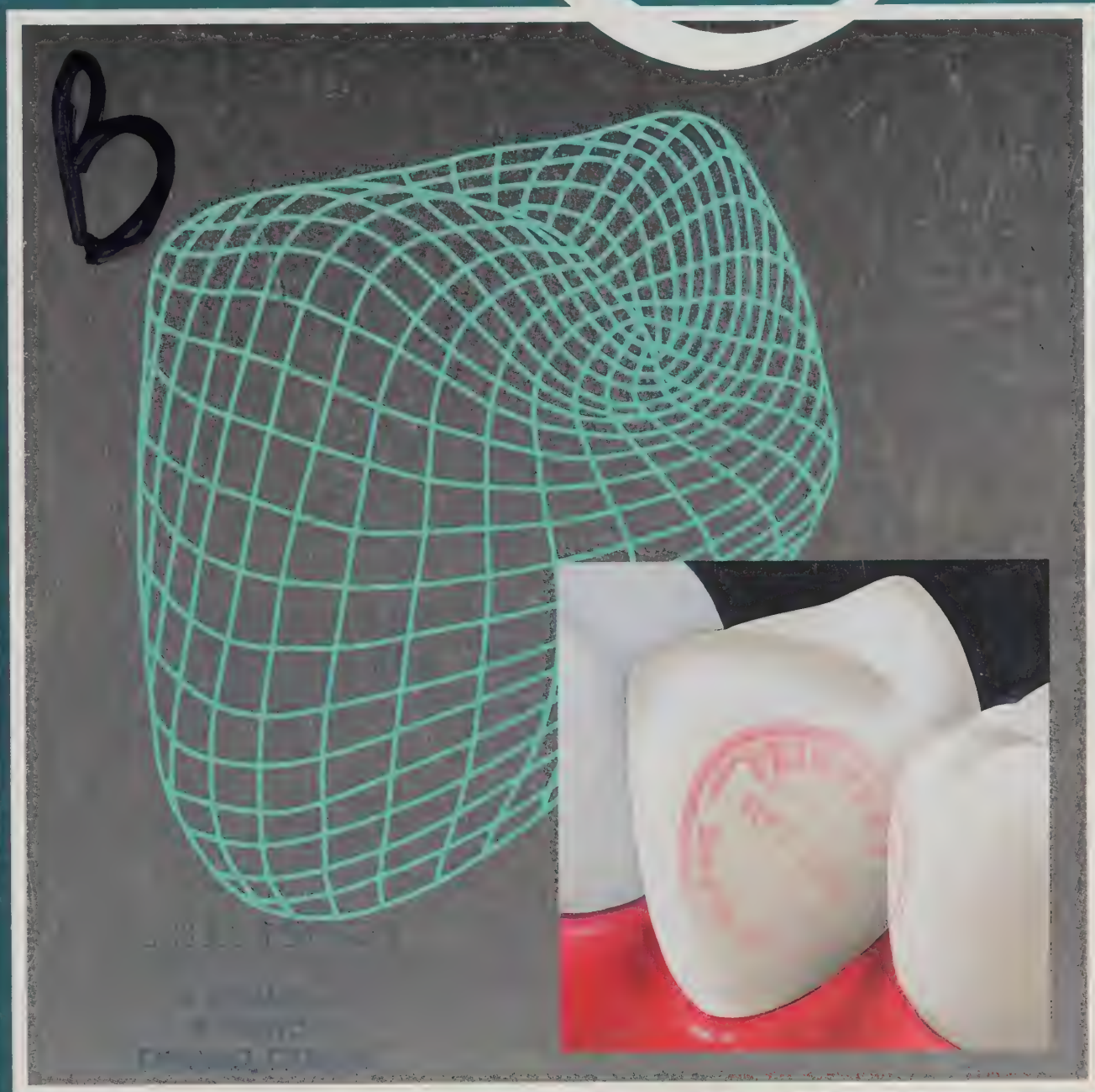
JOURNAL

Canadian
Dental
Association

L'Association
Dentaire
Canadienne

If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
**RETOURNER A
L'EXPEDITEUR**
Port payé



▲ Computers in
Dentistry

▲ L'informatique en
médecine dentaire

ISS 1A5

1A 8812

TWO RELIABLE ASSISTANTS



Your fight for improved dental health is our fight too. Crest was the first cavity fighting toothpaste to put fluoride into demineralized areas, and was also the first with patient support programmes. Through its Preventive Dentistry message, Crest has always supported your efforts to inform your patients about better dental care.

The message continues today with Crest's tartar fighting formula. With the same proven anticaries system as the regular Crest formula, Crest's calculus fighter contains nonabrasive pyrophosphate which chemically interferes with supragingival calculus formation.

Crest's assistance is ongoing, sharing dental research findings and offering helpful patient information. Now more than ever you can trust Crest in your practice and recommend it with confidence.

CREST. DENTAL ASSISTANCE YOU CAN TRUST.



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

Canadian Dental Association
l'Association Dentaire Canadienne

September 1988

Vol. 54 No. 9

Features

- Computers in Dentistry** 661
A series of 4 articles on the subject of Computers in Dentistry.
Ralph Crawford, DMD
- Clinical dental research in Canada: A clinician's perspective** 671
Michael I. MacEntee, LDS, Dip. Prosth., FRCD(C)
- A single dose study of a new analgesic, Ciramadol** 675
J.M. Symington, BDS, MSc, PhD
R.D. Listrom, DMD, MSc.
- Extrusion of endodontic filling material into the inferior alveolar canal** 683
A. Ruprecht, DDS, MScD, FRCD(C)
H. Wagner, Dr. Med. Dent.
- Long term comparison of two surgical flap designs for third molar surgery on the health of the periodontal tissue of the second molar teeth** 689
I.D.F. Schofield, DDS, FRCD(C), FICD et al.



Computers in Dentistry

Departments

- 637 Editorial
638 President's Column
Road to the presidency.
639 News Update
641 CDA RSP
648 Briefly
649 DAP Update
651 Improving your financial bite
653 Book Reviews
656 Resource Centre
658 Letters to the Editor
693 Announcements
699 Marketplace
701 Advertiser's Index

PUBLICATIONS COMMITTEE

Chairman

Dr. John Hardie

Members

Dr. P.C. Desautels
Dr. H. Jack Stockton
A. Jardine Neilson

JOURNAL STAFF

Executive Director

A. Jardine Neilson

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Scientific Editor (English)

Dr. Robert Turnbull

Scientific Editor (French)

Dr. Pierre C. Desautels

Advertising Manager

Anna Spencer (416) 482-1830

Classified Advertising and Circulation Coordinator
Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics

Dr. Aaron Fenton

Oral Pathology

Dr. James Main

Orthodontics

Dr. Alan Lowe

Public Health

Dr. Donald Lewis

Endodontics

Dr. Barry Korzen

Paedodontics

Dr. Howard Stein

Oral Surgery

Dr. Huan Pham

Forensic Dentistry

Dr. Robert Dorion

Periodontics

Dr. Harvey Freedman

Nutrition

Nina Burgess

Canadian Dental Hygienists Association

Carol Worobey

Canadian Dental Assistants Association

Elaine Wesley

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada — \$42; United States — \$44; all other — \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the Journal.

ISSN0709 8936

Canadian Dental Association

EXECUTIVE COUNCIL

President

Dr. J.W. Niedermayer
 Regina, Saskatchewan

Past-President

Dr. R.J. Markey
 Vancouver, B.C.

President-Elect

Dr. K.L. Roach
 Pembroke, Ontario

Dr. D.E. MacFarlane
 Vancouver, B.C.

Dr. Ray Wenn

Charlottetown, P.E.I.

Dr. L.S. Allen

Winnipeg, Man.

Dr. G. Dubé

Lachute, Quebec

Dr. B. Sigfstead

Edmonton, Alta.

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini

Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws

Dr. G.H. Peacock
 Saskatoon, Saskatchewan

Dental Materials & Devices

Dr. R.Y. Barolet
 Montréal, Québec

Education and Accreditation

Dr. A. Schwartz
 Winnipeg, Manitoba

Ethics

Dr. R. Thordarson
 Vancouver, B.C.

Hospital and Institutional Services

Dr. E.L. MacInnis
 Halifax, N.S.

Information Services

Dr. P. O'Brien
 St. John's, Nfld.

Insurance and Investment

Dr. J. Durran
 Hamilton, Ontario

Nominations

Dr. J.R. Robertson
 Summerside, P.E.I.

Student Affairs

Miss M. Shildkraut
 Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
 Ottawa, Ontario K1G 3Y6
 Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer

A. Jardine Neilson

Manager, Executive Services

Sandra Déziel

Council Secretary

Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation

Brian Henderson

Education, Accreditation, Professional Councils

Coordinator of Accreditation

Lorraine Emmerson

Surveys, graduate, undergraduate,
 auxiliary programs, hospital services

Associate Director, Professional Councils

Janice Forsythe

Third Party Dental Plans, Health Care,
 Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration

Joel R. Neal

Administration, finances, information systems,
 membership

Business Manager

Shelagh Dunlop

Accountant

Joan Wilkes

Membership Secretary

Lydia Allison

COMMUNICATIONS

Director of Communications

Linda Teteruck

Dental Aptitude Testing Program, Journal,
 Dental Awareness Program, Student Affairs,
 Resource Centre, MEDLINE, Conferences,
 Conventions, media relations,
 public information.

Information officer

Kimberley Allen-McGill

DAT Coordinator

Win Mobley

Librarian/MEDLINE

Martha Vaughan

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Advertising Manager

Anna Spencer (416-482-1830)

Production/Circulation/Classified

Jennifer McClinton

“Prosthetics, Progress and Prudence”

This history of dental prosthetics, like all scientific endeavor, is a “step-by-step” procedure. Each discovery, each innovation, follows another: each adding to existing knowledge. Each contributes, we hope, (otherwise why bother) to the well-being of the dental patient.

Who is to say that one prosthodontic “discovery” was the most significant or made the greatest contribution. There have been so many. Was it in 1820 when Delabarre developed the first impression tray; 1851 when Goodyear (by accident!) came upon vulcanite; 1857 with Stent’s compound? Perhaps Black’s alloys, Taggart’s 1907 casting machine, Gysi’s articulator or Pollar’s 1925 agar-agar experiments that led to hydrocolloids? Surely Branemark of the 1980s will be remembered. There is little doubt that a century from now Duret’s name will recall the advent of CAD/CAM!

Today’s robotic scientists leave us one clear message. The computer will change prosthetics like we’ve never known before. Consider: prosthodontics without messy impressions; occlusion digitalized to infinite accuracy; no more temporaries — and all in one appointment. Ah, prosthodontics, ah progress!!

But prudence, good dentists, prudence — that quality as stated by Webster — “the habit of acting with deliberation and discretion; wisdom applied to practice”. Inventions and innovations they will rise, they will fall. Those that will be retained will only be those with an ability to render service. The mechanics of dentistry are always subject to change! It is the human factor; the intervention of person to person; the integrity of dentist to patient; that “wisdom applied to practice” that must never change.

The dentist’s application of newfound knowledge must only be utilized to enhance patient care. Certainly, if a new method eases discomfort, decreases time, enhances dental health, lightens a dentist’s burden — use it. But never at the expense of a patient. It’s Golden Rule simplicity; it’s professionalism.

Our prairie philosophy always seems to put our lives in perspective. He knew man’s actions to man should never be ruled by non-human possessions . . . “a piece of machinery, a gun, a horse; they’re only as good as the feller that owns ‘em”. Δ

*P. Ralph Crawford, DMD,
Editor, JCDA*

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted.

The Road to the Presidency

The road to the presidency of any organization might be compared to a cross-Canada automobile journey. The road is not always straight, and there are many ups and downs along the way. Many stops are required, for rest and reflection. It is not a quick trip from one coast of Canada to the other. Along the way we encounter many things of beauty that bring great satisfaction. But the way may also be difficult because of weather or detours, leading to delay and frustration.

The analogy can apply to the road to the presidency. The time of preparation is a long, time-consuming experience. There is much reading, discussion and reflection. There is no school to learn how to become the president of an association. It is simply a matter of interest and willingness to take part in the directional process of the organization. From that point on, it is time commitment and the ability to work with the people around you with the common purpose of achieving a set of priorities for the good of the organization.

So too the Canadian Dental Association. The President enjoys the benefit of a democratic process, and it is that process which places him in the position. However, once in position, it is only through the respect of his colleagues that he/she is sanctioned to function as such within the organization.

Of course, the President is not alone within the Association. In the Canadian Dental Association, the President is surrounded by an experienced Management Committee, an Executive Council regionally selected from this vast country and by a Board of Governors appointed provincially by its member organizations. These people are also supported by an excellent staff at CDA headquarters in Ottawa. Then there are numerous councils and committees and affiliated groups who comprise the expertise of the organization. The "Cream of the Crop" of Canadian Dentistry lies within this organization and this aspect is one that has always fostered pride and well-being for me, when acting on behalf of Canadian Dentistry.

Finally, this President's goal will be to continue the major CDA priorities undertaken previously and not yet completed, and to identify and expand to areas that will impact on the future of Dentistry. To accomplish this goal needs your attention, commitment and dedication to the profession, starting at your local society and provincial levels, in order that our role in promoting oral health for the Canadian public, can be fulfilled.

Think about it! △

*Jack W. Niedermayer, BA, DDS
President of the Canadian Dental Association.*



New CDA President responds to questions about CDA priorities

Dr. Jack Niedermayer, the new President of the Canadian Dental Association, was recently interviewed by this Journal, and the following are his responses to such questions as: what are CDA's three main priorities?; services provided by CDA headquarters, the role of auxiliaries and the provision of guidelines for the interests and protection of the dental professionals and their patients.

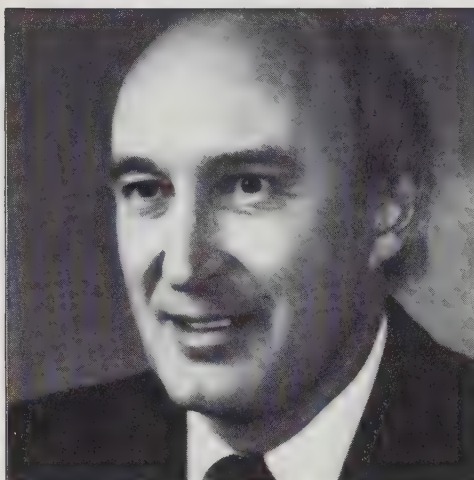
Journal:

Dr. Niedermayer, you have just become the 69th President of the CDA. If asked what are the three main priorities facing CDA today, what would they be?

Dr. Niedermayer:

You're starting off with a tough question! I can think of a number of priorities that are currently being addressed by the CDA. However, I would say the following:

1. the whole area of Alternative Delivery Systems which substantially alter the contractual relationship between the dentist and patient. The CDA and its Corporate Members need to be closely aligned to prevent any interference with a patient's clinical needs and any "outside" system that creates a diffusion of responsibility or places dentists in dubious ethical situations.
2. maintaining the dental team concept in the delivery of dental services is of paramount importance, and (communication is of great importance) to ensure that the dental team concept is kept intact. The dentist, the auxiliaries, the associations and affiliated groups, must all work together toward the strongest possible profession, where ultimately the Canadian dental patient receives the optimum in care.
3. the ongoing endeavors of PRUC: the Professional Resource Utilization Committee, which is dealing with the supply of dentists, vis-a-vis the demand for services. Already there is evidence of this Committee's work, in the voluntary decrease in enrolment within dental faculties.



Dr. Jack Niedermayer

A major priority of three and four years ago — the Dental Awareness Program — I am happy to say, has proved to be so successful and important to the Association that it is now an ongoing program of the CDA.

Journal:

Membership dues across the country are steadily climbing — including CDA's share. What do you say to dentists who complain that CDA's portion (this year it is \$315), is too high?

Dr. Niedermayer:

I am sure there are some members (and non-members) who say that CDA costs too much. However, these comments are far overshadowed by the great majority of dentists who realize that if they want to have an active national association which provides a wide variety of services beneficial to dentists and public alike, it costs money. Our task at the CDA Headquarters is to keep the lines of communication open in order that dentists can clearly realize the advantages of membership. Although the list is extensive and cannot be covered in total at this time, we have spent a great deal of time and energy in providing an increasing number of services to our members during the past few years.

Journal:

Speaking of the CDA Headquarters, a little more than 10 years ago, CDA erected a brand new building that was initially half empty and had less than 20 employees. Today, CDA, on Alta Vista Drive in Ottawa, has more than 30 employees and is short of space (in fact, there is a study being done to perhaps move from the present building). What has caused this internal expansion?

Dr. Niedermayer:

The answer is similar to the one I gave to the previous question — it has to do with the level of activity. The CDA is just a busier organization, doing more and more things — all beneficial to the dentists of Canada. Our very presence in Ottawa involves CDA in an active Government Relations program — an area of activity that was literally non-existent a few years ago. We are constantly monitoring government actions and conversing with federal government officials — be it Medical Services, on quality of dental care for native peoples, Revenue Canada on matters of taxation, or the Federal Centre for AIDS, on our newly-published Infection Control Guidelines, to mention only a few aspects.

The Dental Awareness Program alone requires special support staff to dispense the hundreds of thousands of pieces of information related to our ongoing theme of "Dental Health, Good for Life".

Journal:

Your own province of Saskatchewan has had quite a history with "paraprofessionals", doing the work of dentists. It was the first and only province to employ the New Zealand-type of dental nurse. The National School of Dental Therapy, operated by the federal government, is in Prince Albert. What is CDA's position on the utilization of auxiliaries?

Dr. Niedermayer:

As indicated previously, I am in complete support of the concept of the dental team.

Modern dentistry revolves round the idea of "four-handed" dentistry and the utilization of expanded duty auxiliaries. That method of delivery is one of the factors that has made more dentistry available to more people at the lowest possible fee — within a health care service that requires extensive overhead and expensive upkeep.

The CDA recognizes that although the duties performed by auxiliaries are a provincial affair, nevertheless, CDA is on record that direct supervision of all auxiliaries is necessary as long as it is only the dentist who, by virtue of education, can competently make a diagnosis, create a treatment plan and ultimately be held responsible for the welfare of the patient.

Journal:

You haven't said anything about the Saskatchewan plan?

Dr. Niedermayer:

I don't think that is complicated. The Saskatchewan Dental Plan was born when dental disease was rampant and dental treatment was not always readily available, particularly in the rural areas. The dental nurse was trained to provide these services. Now, the Saskatchewan Government, recognizing the decrease in dental caries and the increase in dentists, took the most logical route. There is still a Saskatchewan Dental Plan but it is operated by the dentists in private offices — and I might say, functioning very well.

Journal:

There has recently been quite a furor over General Anaesthesia in Dental Offices — stemming from two deaths in BC. CDA has drafted Guidelines for General Anaesthesia. Should CDA be involved in those issues which are essentially under provincial jurisdiction??

Dr. Niedermayer:

The CDA has to be concerned with all aspects of dentistry that occur at a national level. The public of Canada and the media in particular, look to CDA — the national body — for general standards or principles of treatment. Ideally, the CDA which is made up of ten provincial Corporate members, should be able to collectively speak for all dentists in the country . . . we constantly strive for this "unification of dental direction".

Journal:

Is this what happened with Infection Control?

Dr. Niedermayer:

Exactly; not that there was an immediate crisis in dentistry but the whole world suddenly found itself facing a life-threatening disease for which there was no cure. The CDA very quickly took leadership, called a National Conference on Infection Control, drafted Guidelines for office procedures and distributed them to every dental practice in the nation.

To conclude, I feel that the type of

leadership evident in the Infection Control issue; the whole area of Third Party and Capitation; the Dental Awareness Program; Government Relations; Accreditation; Taxation, Customs, Standards and Guidelines is what the Canadian dentist is looking for. Our job at CDA is to continue doing the best job we can, with the resources available, and never stop seeking advice from the dentists whom we serve. Δ

Dr. Kevin L. Roach named CDA President-Elect

Dr. Kevin L. Roach, 40, a general practitioner who practises in Pembroke, Ontario, and has had wide experience in organized dentistry, has been acclaimed as President-Elect of the Canadian Dental Association.

Raised in the Ottawa Valley, Dr. Roach received his early education in Pembroke and went on to earn a BSc in Biology and Chemistry from Laurentian University in Sudbury, Ontario, in 1969. He received his DDS from the University of Toronto, in 1973.

On graduation, Dr. Roach was awarded the H.A. Hoskin Award in Oral Diagnosis, a Dental Student Society Award and a bronze athletic award.

A past ODA President

Dr. Roach became involved in organized dentistry soon after graduation, first as President of the Renfrew County Dental Society (1975-77), and then becoming a member of the Ontario Dental Association's Board of Governors in 1977. The following year he became a member of the ODA Executive Council and in 1983, was named President of the ODA.

He has served as a member of the Canadian Dental Association's Board of Governors since 1979, and the CDA Executive Council since 1986. He has also served CDA on the following councils and committees: Membership, Information Services, Dental Materials and Devices, Consumer Products Recognition, Roles and Responsibilities, Hygiene Task Force, Education and Accreditation and Constitution and By-Laws.

Dr. Roach is a member of the Renfrew County Dental Society, the Ottawa Dental Society, Ontario Dental Association, the



Dr. Kevin L. Roach

Canadian Dental Association and the Fédération Dentaire Internationale. He is also a member of the Voyageur Club of Laurentian University and of the Inner Circle University of Toronto Dental Alumni.

Active in community

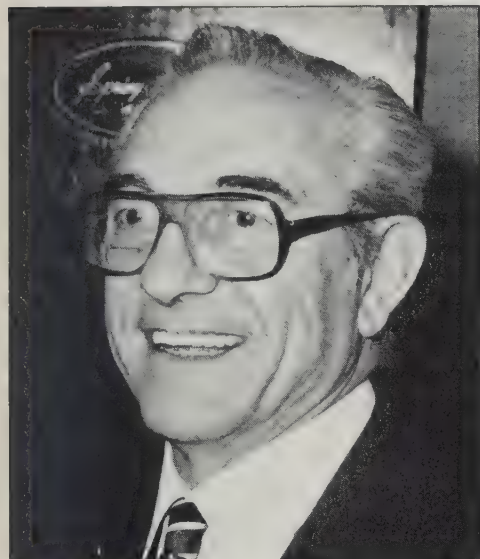
Dr. Roach is also active in his community's organizations. He is a past director of the Kinsmen Club and of the United Appeal Fund.

He is currently a director of the Renfrew County Childrens Aid Society.

Dr. Roach and his wife, Anne have four children: Murray, 13; Maureen, 11; Rebecca, seven, and Meghan, five.

In his limited free time, he enjoys water and snow skiing, hunting, karate and canoeing. Δ

Dr. N.A. Mancini receives CDA'S highest award



Nicholas A. Mancini, BA, DDS

Dr. Nicholas A. (Nick) Mancini, the man whose perception, wit and totally-in-charge style of chairmanship has ensured the success of Canadian Dental Association Board of Governors meetings for more than 10 years, has been honored with the highest award the CDA can bestow.

For his outstanding service to the CDA he has received the Association's Honorary Membership.

Many distinctions

The Hamilton, Ontario, dentist who received his BA in Chemistry, Physics and Biology from the University of Toronto in 1945 and his DDS from the University of Buffalo (New York) in 1948, got involved in organized dentistry when he joined the CDA soon after his graduation.

He also became very much involved in community life in Hamilton and district.

Dr. Mancini offered the benefit of his very considerable talents in cultural activities, municipal planning, hospital administration and social planning. As a Separate School trustee, he won high distinction in the annals of Roman Catholic education in Canada.

His leadership in this field led to Papal recognition and he was created a Knight of St. Gregory.

In dentistry

Dr. Mancini is a past president of the Hamilton Academy of Dentistry, a member of the Canadian Academy of Prosthodontists, and the Pierre Fauchard Academy.

Recently, he was named Chairman of

the Board of Directors of CDSPI.

About 20 years ago, his ability as a chairman par excellence was noted by the Ontario Dental Association and he was asked to serve in that capacity by the ODA Board of Governors. He has fulfilled the task with his unique skill since that time.

For this service to the ODA, that Association chose to recognize his contribution with a high honor — the Barnabus Day Award.

National chairman

In his outstanding career as a Roman Catholic Separate School trustee, Dr. Mancini is a past chairman of the Ontario Separate School Trustees Association and of the Canadian Catholic School Trustees Association. He is presently on the board of directors of the CSTC, and continues to serve as a local trustee and Chairman of the Education Committee.

He served on the original Foundation

Committee for Hamilton's Theatre Auditorium Centre and the Hamilton Urban Renewal Committee. Dr. Mancini has also been a member of the Board of Directors of the Social Planning and Research Council.

A long time supporter of public health facilities, Dr. Mancini served on the staff of Hamilton Civic Hospitals and for six years as a member of the Board of Governors of those hospitals. Later, he was active as a member of the Dominion Council of Health, for three years.

Honored in Edmonton

Dr. Mancini was officially recognized as the recipient of the Honorary Membership on August 19 at the CDA Awards Luncheon during the CDA Board of Governors Annual Meeting, just prior to the CDA Convention in Edmonton, Alberta.

The citation and presentation was by Immediate Past CDA President, Dr. Ron J. Markey. Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	July 31, 1988	June 30, 1988
Fixed Income Fund	61.09009	61.59971
Common Stock Fund	13.90524	14.08183
Money Market Fund	41.06594	40.76707
Balanced Fund	25.20949	25.40766

Interest rates:

Guaranteed Fund

Term	*Interest rates as at	
	July 31, 1988	June 30, 1988
1 yr	9.50%	9.45%
2 yr	9.70%	9.70%
3 yr	10.00%	10.00%
4 yr	10.10%	10.20%
5 yr	10.30%	10.30%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

July 31, 1988	June 30, 1988
\$95,097,750	\$96,624,536

For further information:



CDA RSP

Write:

CDSPI

Retirement Services Dept.

Suite 600

2 Lansing Square

Willowdale, Ontario

M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807

only 1-800-268-5418

Quebec and Ontario, (except Area
Code 807) 1-800-268-3411

Metro Toronto Area 497-7117

Bills C-51 and C-204 now law

CDA remained active to speed passage of anti-smoking laws

Passage of Canada's tough new anti-smoking laws, Bill C-51 and C-204, which ban the promotion and advertising of tobacco products and guarantee a smoke-free workplace for people in federally-regulated institutions, occurred with uncharacteristic speed on May 31. The third reading was given in the House of Commons hard on the heels of letters sent to all Members of Parliament over the signature of CDA President, Dr. Ron Markey and a full page message to Prime Minister Brian Mulroney in the *Globe and Mail* and *Le Devoir*, urging an early passage of the Bills. The full page advertisements in English and French were supported by Canadian health organizations, including the Canadian Dental Association, by educational groups, legal bodies and church groups.

Anticipating a possible delay in the Senate of Canada, CDA moved again on June 15, when letters addressed to the Hon. Lowell Murray, Government Leader in the Senate and to the Hon. Allan J. MacEachen, Opposition Leader, expressing CDA's concern that the assent to the Bills might be slowed by amendments, debate, or study committee deliberations.

The concern was short-lived.

The Senate passed both Bills on June 28, for Royal Assent.

Text of Dr. Markey's letters

The text of Dr. Markey's June 15 letters, sent to the Hon. Mr. Murray, the Hon. Mr. MacEachen, members of the Senate's Government Relations Committee, with copies to the Canadian Cancer Society, the Canadian Council on Smoking and Health, the Canadian Lung Association and the Canadian Medical Association, is as follows:

June 15, 1988

The Honourable Lowell Murray
Leader of the Government in Senate
The Senate
Parliament Buildings
Ottawa, Ontario

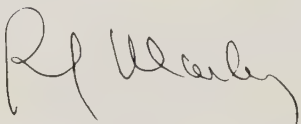
Dear Mr. Murray:

The Canadian Dental Association is extremely concerned with delays which we fear may prohibit Bills C-51 and C-204 from becoming law. As a national health association we have supported and monitored the progress of this precedent setting legislation. Its recent passage by Parliament was a major step; we now look to the Senate of Canada to act in a similarly responsible manner.

Public support for Bills C-51 and C-204 is widespread and well-known. The Health community has voiced its support in the strongest of terms. The premature deaths of 35,000 Canadians every year due to smoking must be addressed, and the youth of Canada defended against future predictions of tobacco addiction.

I urge you as the Government Leader in the Senate, to do all you can to ensure that Bills C-51 and C-204 are passed as soon as possible.

Sincerely yours,



Ron J. Markey, DDS, MSD
President

The letter to the Hon. Allan J. MacEachen, Opposition Leader in the Senate, was identical in text, except for the salutations.

Nature of the laws

The salient features of the two Bills, now law, are provided herewith.

Bill C-204

- Guarantees a smoke-free workplace for federal public servants or any employee whose company is under federal jurisdiction (for example, banks or Crown corporations).

- Requires employers who set up smoking rooms to make "reasonable efforts" to have them separately ventilated. Cabinet could exempt a company if the cost is too high.

- Requires planes, ships, trains and buses that carry passengers and come under federal jurisdiction to be smoke-free except for designated smoking areas.

- Allows cabinet to permit smoking areas for flights longer than two hours or for international flights originating outside Canada.

- Imposes maximum fines on companies that fail to comply — \$1,000 on first offence, \$10,000 on second offence. But the act gives employers 12 months' grace before fines can be levied.

- Imposes maximum fines on smokers who light up in non-smoking areas — \$50 on first offence, \$100 on second.

None of these measures will come into effect until cabinet decides when to proclaim them. Technically, it could withhold proclamation indefinitely but health groups say they're not expecting a delay.

Bill C-51

- Bans tobacco advertising in Canada, whether on radio, TV, billboards, newspapers or magazines, with some exceptions.

- Allows TV or radio broadcasts originating outside Canada, as well as imported publications, to carry tobacco ads. But no one in Canada can promote tobacco products here by piggybacking on foreign broadcasts or publications.

- Allows tobacco ads on most signs, primarily billboards, only until Jan. 1, 1991. Until then, the number of signs must be phased out gradually and each must carry a health warning.

- Allows signs advertising tobacco at retailers' shops only until Jan. 1, 1993, with certain restrictions.

- Allows tobacco manufacturers to use brand names in promotional activities related to sports or cultural events that they sponsor only if the contract was signed before Jan. 25 this year.

- Bans free samples, rebates, contests or games offered by tobacco manufacturers.

- Requires that all tobacco products have health warnings drawn up by regulation and that they include a list of toxic substances.

- Imposes maximum fines ranging from

\$2,000 to \$300,000, and maximum prison terms of six months to two years, depending on the violation.

All of these measures come into effect Jan. 1. Δ

Dr. George Beagrie, retired as Dean at UBC, June 30

Dr. George Beagrie retired as Dean of the Faculty of Dentistry, University of British Columbia, on June 30. He had held the position for ten years, during which time the Faculty greatly increased its research activities and graduate student enrollment as well as starting a PhD program. It was also a period marked by the establishment of dental departments in several Vancouver hospitals. This allowed general dental practice residencies to develop with a widening of hospital-based education within the undergraduate curriculum.

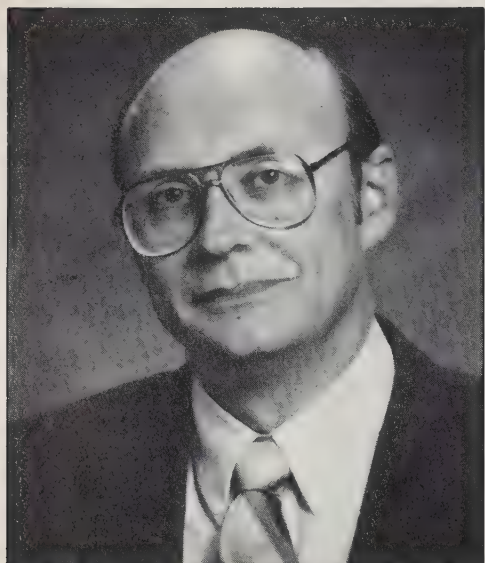
The University's Vice-President, Academic and Provost, Dr. Dan Birch, paid tribute to Dr. Beagrie at a banquet in Dr. Beagrie's honour. He noted not only the development of the Faculty of Dentistry but also Dr. Beagrie's contribution, at the senior level, to the University administration. He also recognized Dr. Beagrie's international contributions to the International Association for Dental Research, Fédération Dentaire Internationale and the World Health Organization.

Other speakers at the banquet included Dr. Henry Dick, President of the National Dental Examining Board and Dr. Bill Rosebush, President of the UBC Dental Alumni Society. Others attending from out of town were Dr. Art Schwartz, Dean of the Faculty of Dentistry, University of Manitoba and Dr. Gundy Kravis, Registrar, National Dental Examining Board. Included in the 130 guests were the UBC President, Dr. David Strangway and his wife and former Dean of Dentistry, Dr. S. Wah Leung and his wife. Δ



Dr. George Beagrie (centre) and his wife Marjorie, are seen with Master of Ceremonies Dr. Don Burnette, Head of UBC's Oral Biology Department at the banquet held in Dr. Beagrie's honor.

Dr. Paul Robertson becomes UBC's Dean of Dentistry



Paul Robertson, DDS, Dip. Perio, MS

Dr. Paul Robertson, formerly of the University of California, San Francisco, became the third Dean of the Faculty of Dentistry, University of British Columbia, on August 1.

Dr. Robertson had previously been Professor and Chairman, Department of Stomatology at the University of California, since 1983, and from 1976 to 1983, was Professor and Chairman, Department of Periodontology at the University of Connecticut.

He was awarded his DDS degree from the University of Texas, Dental Branch, in Houston, in 1966, and a postgraduate diploma in periodontics and MS in experimental pathology, from the University of Alabama, in the period 1969-72.

During his career, Dr. Robertson has combined clinical and basic research with clinical teaching and practice, a mixture he anticipates continuing at UBC. His research interests have included both the pathogenesis and treatment of inflammatory periodontal diseases. Most recently, he has been investigating controlled release antibiotic delivery systems for oral use and has been part of a very active group assessing oral manifestations of acquired immunodeficiency syndrome.

He brings wide experience of academic affairs both from within dental schools and university. He also has a long history of service to the profession, having held positions with the American Dental Association, American Academy of Periodontology, International and American Associations for Dental Research.

He is Chairman of the National Institute of Dental Research, Special Grants Review Committee, and serves on the editorial boards of the *Journal of Periodontal Research* and *Journal of Periodontology*.

Dr. Robertson has given more than 200 scientific presentations, guest lectures and continuing education courses, is the author of 52 scientific papers, 120 scientific abstracts and contributor to five textbooks.

He will be joined in Vancouver by his wife, Marjorie and daughter, Susanne. His son, John, is attending the University of California. Δ

Plan Now to Attend

the 1989 CDA
CONVENTION
IN
VANCOUVER
B.C.



August 27 to 30, 1989



CDA's 1989 Convention in Vancouver: A made-to-measure meeting!

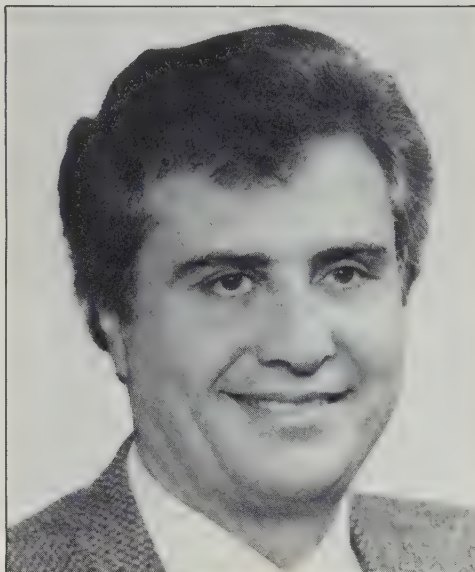
What an exciting and stimulating honour it is to be called upon to chair CDA conventions! As a practising dentist and CDA member, it is truly a great privilege to find myself "behind the scenes" at CDA and witness the enthusiasm, relentless efforts and amount of time that the people at CDA are investing into this project, which is one of many grouped under the CDA umbrella. I am, of course, referring to the project coded "THE NEW LOOK", which has the objective of changing the "face" of CDA conventions.

The Board, the Executive and the Staff have made a commitment to transform CDA conventions into a yearly meeting place for the dentists of Canada and their team. Dr. Ron Markey, Immediate Past-President, and Mr. Jardine Neilson, Executive Director, are the two persons I have most seen "in action" and . . . action is the name of the game at CDA!

As a newcomer to the team, I am overwhelmed by this intense activity and will do everything in my power to help my fellow team members achieve this goal. At this time, I would particularly like to mention two other persons who have had an active role in THE NEW LOOK project, CDA Past President, Dr. John Robertson, and the Director of Communications, Miss Linda Teteruck.

Many essential elements contribute toward the success of a convention: the RIGHT place, the RIGHT weather, the RIGHT scientific program, the RIGHT social program, but most of all . . . the RIGHT PEOPLE — for people make up a convention!

Although I have been involved in convention planning for many years, I am still fascinated by the rapid and dramatic change that grips the convention centre in the course of just a few days. The forbidding, deserted and silent halls, lecture rooms and hallways are magically transformed into a bustling, vibrant and beautifully-decorated meeting place. Smiling faces and happy people invade the centre to make it "theirs" for several days, anxious to absorb everything that is being offered! Questions are raised, for example: "Of the two fascinating lectures being held on the same day, which one should I attend?" Others are faced with a choice between table clinics, film screenings or exhibits, to compare equipment and materials.



Michel Jahjah, DDS

And then, there is the social aspect. Efforts are made to remember the names of "long lost" colleagues and acquaintances, or just trying to identify the profession that fellow participants belong to. (It is no longer an easy task to guess who the dentist, hygienist or assistant is in a group of people!) Energy is spent sightseeing, or rushing to change for the evening's activities, or just wondering which gourmet specialties to choose from at a favourite restaurant. Families walk together with their children, dental teams

discuss the morning lectures over lunch and singles . . . size each other up!

Speaking of transformations, the B.C. College of Dental Surgeons radically changed the format of its convention this year and what a rewarding experience it was to witness its success! The dental meeting was held in a beautiful new facility and the mood was upbeat!

Conventions are people and these people are you, the dentists, exhibitors, hygienists, assistants, technicians and administrative staff. What would you like to see in a CDA convention? We are open to all suggestions. Which speakers would you like to listen to? Which topics would you like to have discussed? What else would you like to see in CDA conventions?

Drop us a note or a card to:

CDA CONVENTION

1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

Your suggestions will be taken into consideration for the CDA Convention in Vancouver. It could just be your "made-to-measure" meeting!

Come and see THE NEW LOOK in Vancouver from August 17 to 30, 1989. We'll be there!! Δ

Michel Jahjah, DDS
General Chairman
CDA Conventions

Attendance figures soar at les Journées dentaires

Les Journées dentaires du Québec, held from May 29 to June 2 last, in Montréal, has perennially enjoyed high attendance figures and the 1988 convention held jointly with the International Association of Gerodontology, was no exception.

The total attendance was 7,033. Of that figure, 2,402 were dentists, 704 hygienists, 1,036 assistants, 471 administrative staff, 43 technicians, 126 spouses, 1,415 exhibitors, 395 guests, and in the student category, 110 were dental students, 136 hygiene students, 184 assistant-trainees and 11 were student technicians.

Organizers have announced that the 1989 Les Journées dentaires convention will be held jointly with the Dental Society of the State of New York, at the Montréal Convention Centre, from May 28 to June 1. Δ

CDA confers three Awards of Merit



Dr. Edward (Ted) Allison

The Canadian Dental Association's Award of Merit, granted to a member of the dental profession who has served in an outstanding capacity in the governing of the Association, was awarded to three notable dentists during the Awards Luncheon in Edmonton on August 19.

Drs. Edward (Ted) Allison of Calgary, John Christie of Halifax and Yosh Kamachi of North Bay (Ontario) were the recipients of the honors from Dr. Ron J. Markey, Immediate Past-President of the CDA.

Dr. Allison

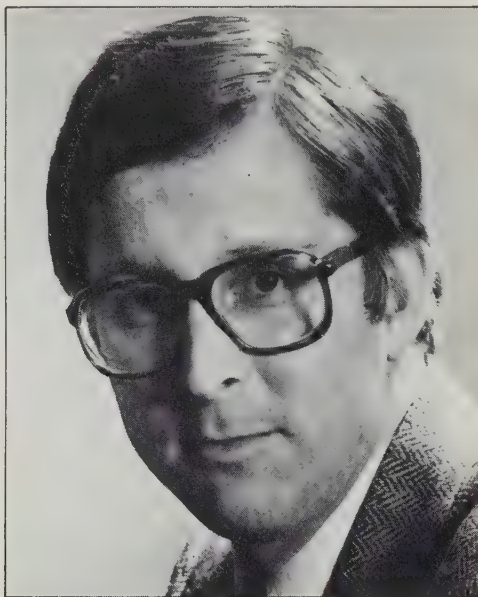
In general practice since 1953, Dr. Allison has been President of the Calgary and District Dental Society, the Alberta Dental Association and First Vice President of the Pacific Dental Federation.

His service to the Canadian Dental Association has included the chairmanship of the Council on Auxiliary Services and Executive Liaison to the Councils on Hospital and Institutional Services and Constitution and Bylaws. A member of CDA's Board of Governors from 1979, Dr. Allison was named to the Executive Council in 1985 and served on that body for two years.

Most recently, Dr. Allison served as the Alberta Dental Association's and the Canadian Dental Association's liaison to the 1988 Calgary Winter Olympic Games.

Dr. Christie

Dr. Christie served as President of the Nova Scotia Dental Association in 1978-79. He was a member of CDA's Board of Governors from 1980 to 1987.



Dr. John Christie

He was elected to the CDA Executive Council in 1985. During that period he served as Executive Liaison to the Councils on Student Affairs, Dental Materials and Devices and Education and Accreditation.

Dr. Christie was Co-Chairman of the CDA Halifax Convention Committee in 1979-80 and served as a member on the Health and Welfare Working Group on Dental Hygiene.

Dr. Kamachi

A past-president of the North Bay and District Dental Association, Dr. Kamachi was Chairman of the Ontario Dental Association's Communications Committee from 1977 to 1981 and became a member of the CDA Council on Information Services in 1979. He was appointed Chairman of that Council in 1982.



Dr. Yosh Kamachi

Dr. Kamachi was instrumental in the development and subsequent success of CDA's Dental Awareness Program.

Born in New Westminster B.C., Dr. Kamachi received his DDS from Dalhousie University in 1960.

Certificates of Merit

For their exemplary service in a variety of capacities, 15 other prominent members of Canada's dental community were honored with CDA's Certificate of Merit.

Dr. Markey made presentations to Drs. Gordon Anthony, Ralph Y. Barolet, George S. Beagrie, Jack Gryfe, Keith Hamilton, Bruce M. Jackson, Gerry McFarlane, Lt.-Col. Peter R. McQueen, Gordon Nikiforuk, Roger Porter, John Rooney, Kenneth R. Skinner, John E. Speck, William C. Sturtridge and Robert S. Turnbull. △

Did you know?

Under the current United States Custom Service "Zero Tolerance" program for illicit drugs it is illegal to bring some common OTC (over-the-counter) or non-prescription drugs into the United States from Canada.

Such drugs as Seldane, Hismanal, Chlortripolon, Tylenol #1, Atasol-8, and other commonly used Canadian OTC products may be questioned at border points and could well result in confiscation of the drugs, seizure of automobiles and fines.

Travellers into United States are advised that ALL medications MUST be accompanied by valid, current prescriptions from a physician or dentist. Medications taken across the border must be transported in properly and legally labelled containers.

If there is any doubt, travellers are advised to contact the nearest office of the United Customs Service.

Update of regulatory status of dental implants in Canada

The Premarket Division, Bureau of Radiation and Medical Devices, Health and Welfare Canada has recently released an update on the status of dental implants in Canada.

Appendix I

As of June 29, 1988, the following manufacturers have provided data on safety and efficacy and have permission to sell their products in Canada.

Manufacturer: Interpore International Inc.

Device: Interpore IMZ Implant System (Mechanical Attachment)

Notices of Compliance issued January 6, 1987.

Device: Interpore 200: Sterile Granules Alveolar Ridge Augmentation
Anterior Curve Granules for Repair of Periodontal Defects
Posterior Block Rectangular Wedge
Unshaped Block Pyramidal Wedge
Alveolar Ridge Maintenance Crescent Wedge

Notices of Compliance issued March 8, 1985.

Device: IP200 Malar Onlay IP200 Granules
IP200 C-F Rectangle IP500 Rectangle
IP200 C-F Curve 90R IP500 Square
IP200 C-F Curve 45R IP500 Rectangle

Notices of Compliance issued February 28, 1986.

Manufacturer: Nobelpharma Canada Inc.

Device: Biotes Osseointegration Dental Implant System

Notices of Compliance issued October 30, 1986 (Non-Sterile) and June 30, 1987 (Sterile).

Manufacturer: Anchor Implant Ltd.

Device: Anchor Dental Implant System

*Clinical Trial Status granted until September 1989.

Device: Anchor I Hydroxyapatite Coated Dental Implant

*Clinical Trial Status granted until June 1989.

Manufacturer: Calcitek Inc.

Device: Calcitite RM

Notices of Compliance issued November 27, 1984.

Device: Calcitite

Manufacturer: Orthomatrix Inc.

Device: Hydroxyapatite Models HA-1000 and HA-500

Notices of Compliance issued October 15, 1985.

Manufacturer: Sterling Drug Inc. (Cook-Waite Laboratories Inc. Division)

Device: Alveograf — Alveolar Ridge Bone Grafting Implant Material

Notices of Compliance issued March 8, 1985.

Manufacturer: Core-Vent Corporation Micro-Vent (Hydroxyapatite

Device: Core-Vent Implants (non-sterile) coated) Implants
Core-Vent Implants (sterile) Screw-Vent Implants (sterile)
Micro-Vent Implants (sterile) Swede-Vent Implants (sterile)

— included are various attachment systems.

Notices of Compliance issued March 31, 1988.

Device: Sub-Vent Implants (sterile)

*Clinical Trial Status granted until April 1989.

Manufacturer: Bone Anchorage Systems Inc.

Device: Dental Implant (Self-Tapping Screw)

*Clinical Trial Status granted until July 1989.

*Permission to sell to designated investigators only. △

"CCAB provides direct assurance that consumer circulation claims are valid"

Lowell Lunden, Manager,
Marketing Services

The Quaker Oats Company of Canada Ltd.

"We make heavy use of consumer advertising as well as promotional techniques such as co-op coupon mailings. As we handle direct mail campaigns ourselves, we were pleased when the Canadian Circulation Audit Board expanded its services to audit the distribution of direct mail coupons."

Mr. Lunden is also enthusiastic about CCAB's growing coverage of consumer magazines and community newspapers... "Just as many business-to-business advertisers insist on using only CCAB audited publications, so do consumer marketers gain from the high quality data presented through the CCAB Publisher's Statement." For further information call Patrick Sweeney at 416-487-2418.

ccab Inc.

Comprehensive Circulation Data
for consumer, business
and farm media



The Pharmaceutical Manufacturers Association of Canada, (PMAC), has recently published a concise and informative bilingual booklet, entitled: "Code of Marketing Practices".

The publication outlines the principles and/or practices of ethical pharmaceutical marketing.

Copies of this Code may be obtained from:

Director of Publications
Pharmaceutical Manufacturers
Association of Canada
302 - 1111 Prince of Wales Drive
Ottawa, Ontario K2C 3T2
Telephone: (613) 727-1380. △

Dr. Perry H. Trester of Vancouver, has been elected President of the College of Dental Surgeons of British Columbia, and assumed the office on July 18.

The other Table Officers who will serve during the 1988-89 term are:

Dr. John S. Diggins, of Vancouver, appointed Vice-President; Dr. Larry P. Rossoff, of Richmond, appointed Vice-President, and Dr. Marke Pedersen of Vernon, B.C., appointed Treasurer.

The new slate was announced at the annual general meeting of the B.C. College, on May 12, last. △

Dr. Donald E. Williams of Moncton, N.B. was elected President of the New Brunswick Dental Society at its recent annual meeting.

He succeeds Dr. E.G. Schroeter, of



Dr. Donald E. Williams

Rothsay, N.B., in that office.

Dr. Williams was the President of the Canadian Dental Association in 1982. He is a Fellow of the International and American Colleges of Dentists and received an honorary LLD from Dalhousie University in 1982.

The meeting, held in Saint John, was well attended by society members and by Dr. Ron Markey, then president of the CDA, Jardine Neilson, Executive Director of the CDA, and Dr. Ray Wenn of Charlottetown, Atlantic Provinces representative on CDA's Executive Council.

A new by-law was passed by the Society enabling member dentists to attain Life Membership status when they reach the age of 65 and 30 years in practice.

Dr. Blake O'Brien received Honorary Membership at the meeting. Dr. O'Brien practises in Fredericton.

The Society now has its first permanent office in its almost 100 years. It is located at 93 Prince William Street in Saint John, N.B. △

"Guide to the use of cements for luting fixed restorations" is the title of the latest Technical Report (No 29) published by the Fédération Dentaire Internationale (FDI). FDI Technical Reports are prepared to meet the current information needs of general dental practitioners and are produced as a benefit of membership for individual supporting members of the FDI.

Compiled by an international working group of the FDI's Commission on Dental Products, the report comprises a single-sheet of guidelines for practising dentists. It advises on precautions and manipulation procedures for zinc phosphate and silicophosphate, polycarboxylate and glass ionomers and reinforced zinc oxide and Eugenol EBA.

Dentists who are FDI supporting members may obtain a free copy of the report from FDI, 64 Wimpole Street, London W1M 8AL, United Kingdom. Information about becoming a Supporting Member together with a complete list of FDI publications is also available from this address. △



New executive members of the College of Dental Surgeons of British Columbia pose for a Vancouver photographer. They are, from the left: Drs. Mark Pederson, Treasurer; John Diggins, Vice-President; Perry Trester, President, and Larry Rossoff, Vice-President.

Dental Awareness Program Update

September 'Supplement'

The latest Canadian Dental Association Supplement hits newsstands this month in new venues and with a whole new look. Look for a 12-page insert called "PLANNING TO KEEP YOUR TEETH GOOD FOR LIFE? THEN YOU'D BETTER HAVE A PLAN" in *Canadian living* and *Coupe de Pouce*, as well as *Images* magazine, which appears in 460 Shoppers Drug Mart stores across Canada.

Millions of Canadians will be reading about the CDA's 5-Point Prevention Plan in this exciting Supplement. The five points of the plan:

- Don't rush your brush
- Clean between
- Eat, drink, but be wary
- Check your gums
- Don't wait until it hurts

are explained in a popular and easy-to-read style. And the plan is illustrated with photographs of ordinary people, and accompanied by their TOOTH CONFESIONS! which describe in their own words their experiences with dental health. Questions and answers highlight important features of each of the five points.

This shift to a new theme and new venues for the Supplement ensures that the 5-Point Prevention Plan becomes the cornerstone of the educational message of preventive dental care, and that the success of the April 1988 Dental Health Month is carried on throughout the year.

With this Supplement, The 5-Point Prevention Plan has become an integral part of the CDA's dental awareness program, and Canadians are being reminded — in a popular and attractive manner — of its official recommendations for maintaining good dental health.

As with other issues of Checkup, the Supplement is also an excellent educational aid in getting patients committed to year-round dental health and committed to seeking the appropriate professional care and assistance in improving their dental health and preventing gum disease.

Dr. William K. Hettenhausen, executive director of Your Teeth For a Lifetime

Foundation, recommends this Supplement in particular as a useful tool in patient education. Says Dr. Hettenhausen, "The dental profession can't go wrong by having well-informed patients. The well-informed patient who realizes the true value and benefits of quality dentistry is not only more likely to ask for those services, but will refer others to do so."

Once again, this opportunity to provide Canadians with valuable information about dental care has been made possible by the generous support of Colgate-Palmolive Canada Ltd.

Over-runs of the Supplement were

sent in bundles of ten to professionals throughout Canada during late August and early September. However, additional copies of the Supplement are also available from:

Order Section

Canadian Dental Association

1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 523-1770

First Teeth

Not only has the First Teeth campaign been a resounding success with respect to the amount of materials ordered and the attention it has gained among the profession, but an advertisement for the First Teeth booklet even gets top marks for readability according to the Daniel Starch & Staff agency.

The national research agency scores advertisements on the basis of the percentage of readers who noticed and read them. The ad for First Teeth which appeared in the February and March issues of *Chatelaine* received a Starch score for readability twice that of the average for all ads of the same size in the same category. Stock up on First Teeth materials . . . patients will soon start asking for them!

Dental Health Month 1989

Believe it or not . . . plans are already underway for Dental Health Month 1989. From all the calls and letters we've received, it's obvious that everybody loves Bob and the Keep Smiling message. So, for 1989 we're going to stick with this winner — Keep Smiling — and build the best dental health month campaign yet.

By keeping the Keep Smiling theme, all the materials used last year, and still available in the catalogue, can be reused next April! However, we will also be creating a whole new series of programming materials to complement the existing promotional items. And a brand new Bob poster is also in the works.

Watch this page for more news on Dental Health Month 1989 . . . and Keep Smiling. △

LONG IN THE TOOTH?

Receding gums
aren't a sign of age.
They're a sign of gum
disease — the *major*
cause of adult tooth loss.

You can prevent
gum disease, and save
your teeth from getting
old before their time.
Floss and brush carefully.
And see your dentist
for preventive
checkups.

DENTAL HEALTH
Good For Life

CANADIAN DENTAL ASSOCIATION

A logical first choice for non-Rx analgesia in mild to moderate pain.

EXTRA-STRENGTH TYLENOL*

acetaminophen

INSTEAD OF ASA

When more than a standard analgesic dose is required for pain relief

26%

MORE EFFECTIVE

(reduction of total pain intensity¹)

You know that acetaminophen and ASA are equipotent, mg for mg, in the reduction of pain and fever. Studies have also shown that Extra Strength Tylenol dose provides significantly more pain relief than a standard (650 mg) ASA (or acetaminophen) dose¹. When more pain relief is necessary, consider the Extra Strength Tylenol option and its benefits for your patient.

Extra pain relief without ASA side effects

For prescribing information, see page 659.

McNEIL

McNEIL CONSUMER PRODUCTS COMPANY
GUELPH, ONTARIO N1K 1A5

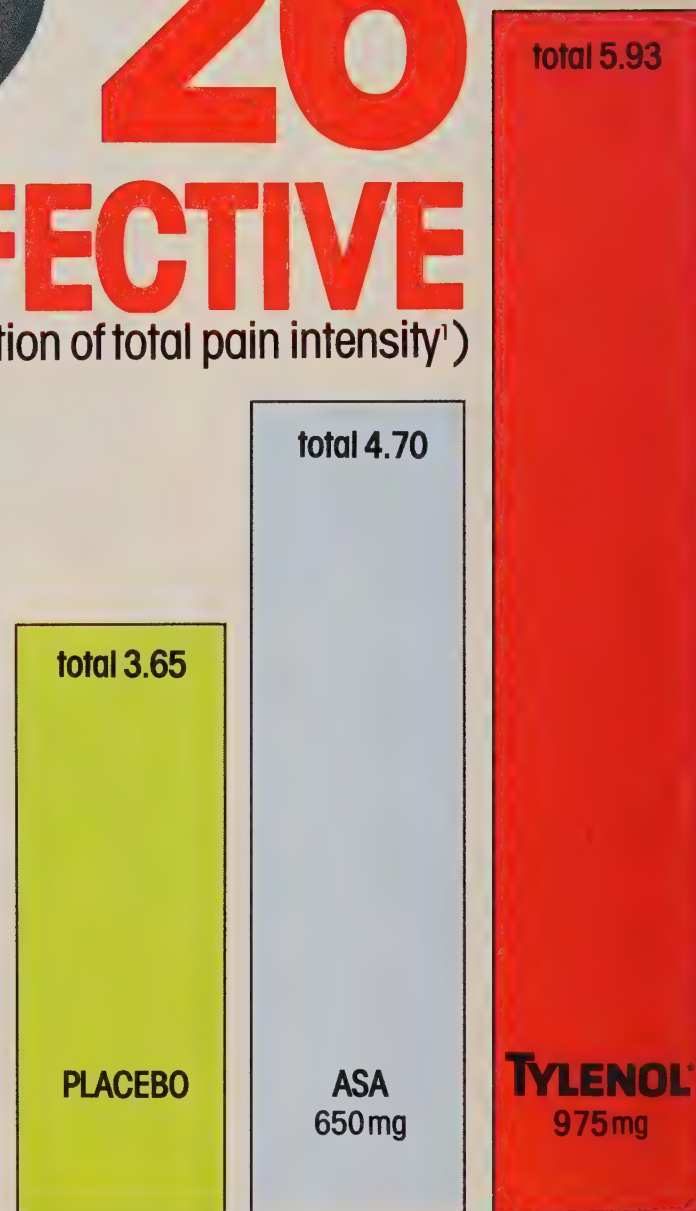
PAAB
CCPP

REFERENCE:

1. **The clinical study:** In a double blind, single dose study of 122 dental patients suffering postsurgical pain, 975 mg acetaminophen was 26% more effective than 650 mg ASA for Sum of Pain Intensity Difference (SPID) at a confidence level greater than 95%. SPID is a measure of total pain intensity reduction during the four-hour study period.

Data on file, McNeil Consumer Products Company

*Trademark



Similar results could be assumed in terms of pain relief comparing equal doses of ASA and acetaminophen

Improving your Financial Bite

Grading the U.S. Mutual Fund Managers B? C? A? F?

By Professor Jerry Ackerman

Except for a couple of days last October, the last five years has been a splendid time to invest in "Wall Street", i.e., common shares. The popular Dow Jones Industrial Average index of 30 stocks, with dividends reinvested, gained 117 per cent, while the much more representative Standard and Poor 500 stock index increased 106 per cent from March 31, 1983 to March 31,

1988. By matching the market, **your investment** results could have been a 100 per cent gain (15 per cent per year compounded). Even after an inflation adjustment (19 per cent over the five year period), your gain would be on the order of 90 or 100 per cent.

By "hiring" a mutual fund management team of professionals and paying

an upfront sales charge of up to 8 per cent, the challenge should have been an even easier one.

It wasn't.

A study of the information on 560 mutual funds with five year records (Barron's financial magazine of May 16th) reveals the following results from an initial investment of \$10,000. . .

TABLE A

FIVE YEAR RESULTS	PERCENTAGE GAIN	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
less than \$10,000	outright loss	21	F

(No excuses accepted for failing grades. Ten of these funds also have sales charges. Two were gold funds, two were "technology" and seventeen were out for growth or capital appreciation. The worst was, "44 Wall St" (by name) where an initial \$10,000 investment disappeared except for \$1,737. at the end of five years.

Four Steadman mutual funds lost substantially but not for lack of trying. Steadman's recent annual turnover, i.e., the portion of portfolio replaced, ranged from 129 per cent to 420 per cent. Despite these five years of failure a total of over \$27 million remained in the four mutual funds)

TABLE B

\$10,000 mutual fund investment

FIVE YEAR RESULTS	PERCENTAGE GAIN	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
\$10,000 to \$20,000	None after inflation	16	D
\$12,000 to \$15,000	Less than 30 per cent after inflation	83	D

(These mutual funds ranged in size from less than \$1 million to \$936 million at the end of March, with five being over \$500 million. Many had service charges and some were broker-affiliated, e.g., Merrill Lynch Special Value, with over \$100 million in assets after not covering inflation during the five years.

Just not good enough!!)

Didn't anyone do it right? Well maybe, let's look at them. . .

TABLE C

\$10,000 mutual fund investment

FIVE YEAR RESULTS	PERCENTAGE GAIN	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
\$15,000 to \$20,000	after inflation 30 to 80 per cent gain	336	C

TABLE D

\$10,000 mutual fund investment

FIVE YEAR RESULTS	PERCENTAGE GAIN	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
\$20,000 to \$25,000	after inflation 80 to 100 per cent gain	87	B

(More like it! This is what is expected from professional management under ideal circumstances.)

TABLE E

\$10,000 mutual fund investment

FIVE YEAR RESULTS	PERCENTAGE GAINS	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
\$25,000 to \$30,000	Inflation covered plus 130 per cent to 180 per cent gain	11	A

(only 11 funds, but definitely commendable results)

TABLE F

\$10,000 mutual fund investment

FIVE YEAR RESULTS	PERCENTAGE GAINS	NUMBER OF FUNDS	PROFESSOR ACKERMAN'S GRADE
\$30,000 or more	"BIG" Gain	6	A +

(WOW!! In two of these funds, Merrill Lynch Pacific and Japan Fund — \$10,000 became \$46,000. How?? Japanese investments were "hot" and "stayed hot".)

In summary, for every one of the above mutual funds that "doubled the money" there were four that failed to do so.

Last summer (1987) investors were rushing to grab new shares of the mutual funds managed by superstars like. . .

*John Templeton of Templeton
Foreign: +172 per cent, 5 years

*Peter Lynch of Fidelity
Magellan +433 per cent, 10 years

*Kenneth Heelmer of Loomis
Saeles +810 per cent, 10 years

*John Neff of Windsor . . +892 per cent,
15 years

Mutual fund financial planners and mutual fund salespersons seemed able to make any fund look attractive. Never mind the 4 per cent, 5 per cent, or even higher, "sales talk". The raging bull market increased enough to cover the costs of the sales talk.

And now in 1988?? Well, it appears the easy days are over. During the first three months of this year, investors took \$4 billion out of equity funds instead of putting in \$13.3 billion as they did last year. New investment dollars have gone slightly to bond funds (\$1.4 billion versus \$32.5 billion the year before) and largely to money market funds, \$20 billions, and tax-exempt funds, \$8.5 billion.

Also, there are some alarming trends. . .

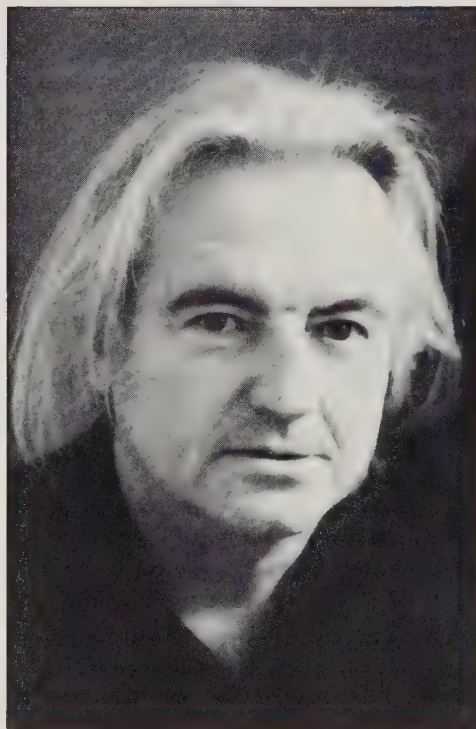
1. Broker-created funds represented 20 per cent of the total in 1987 (their profit with funds is three or four times as much as with retail investors).

2. More fees attached. Management and expense charges are creeping upward. Some funds have instituted withdrawal and termination charges. Some are trying "trailer" commission fees that last as long as you hold the fund.

3. The U.S. watchdog agency, Securities and Exchange Commission of Washington, now requires the use of standard formulae to calculate yield. No more annualizing a two month return or picking the best moment to begin the graphic history of the fund.

4. All the Canadian banks have bought up brokerage firms. This reach for an overall financial monopoly does not bode well for the individual investor who has learned to avoid the conflicting and conflict-of-interest advice of bankers and brokers and has, thereby salvaged a return for his investment dollars.

I think I'd better keep on trying to invest without so much of that expensive assistance. How about you?? As a former professor I just hate to see those failing grades. Δ



[Jerry Ackerman, PhD., Ste. 102, 1200 Pembina Highway, Winnipeg, Manitoba, R3T 2A7, is a financial counsellor, and co-author of the best seller, "The NEW Start with \$1000 — Do It Yourself Investment Strategies."]

Healthy Aging?

A sound mind and a sound body are the keys to independence. Learn to adapt to your changing lifestyle as you reach retirement. Take Healthy Aging, your key to an independent future!



St. John Ambulance

Book Reviews

OPERATIVE DENTISTRY: MODERN THEORY AND PRACTICE

M.A. Marzouk, A.L. Simonton
and R.D. Cross

*Ishiyaku EuroAmerica Inc. 1985
477 pages, 900 B&W illustrations
\$47.50 U.S.*

This book approaches operative dentistry from a practical point of view by guiding the dental student, for each restorative procedure, first through the conventional method then modifying it to a more current approach and finally through the modifications needed for teeth that are more extensively broken down.

The book begins with a discussion of the principles of operative dentistry — the caries process is explained and classified and Black's principles of cavity preparation are introduced. The text treats all aspects of operative dentistry extensively. For example, the first chapter discusses pulp histology and anatomy thoroughly enough for the student to appreciate the care which must be taken to minimize the insult to the pulp. A rather standard treatment of the operative dental armamentarium and field of operation follows. Dental amalgam, still the mainstay of operative dentistry, is treated next. The materials science of dental amalgam outlines the handling properties and biologic considerations for the material. The various classes of amalgam restorations are discussed. General principles are discussed first, then the mechanical properties. Cavity preparations are discussed in the manner described above. Direct tooth colored restorations are treated in the next section. The various resin materials are reviewed from an historical aspect and physical and mechanical properties are discussed. Tooth preparation, insertion and finishing techniques are then discussed as they were with amalgam. Pins for non-cast restorations are discussed from both a mechanical and anatomic point of view. The anatomy of specific teeth is shown to the student for the most advantageous pin placement location. Contacts and contours from an anatomical, periodontal and physiological aspect are discussed next. Matrix techniques and placement are also discussed in this chapter. Bases and liners are completely discussed. Probably one of the best chapters is that dealing with the problem and treatment of deep carious lesions. Peri-

odontal considerations for single tooth restorations are discussed. Intracoronaral castings are treated extensively from the materials used to the cavity preparations needed and the various problems associated with wax patterns, investing, casting and finally insertion and finishing and polishing the restorations. Pin placements for these restorations are also discussed. The various casting materials are discussed with their advantages and disadvantages; periodontal considerations for castings are discussed; impression techniques are also discussed along with the working dies and model construction, temporary restoration techniques, occlusion records and transfer. Direct gold restorations are the last restorative material discussed. This chapter is very complete outlining the considerations for choosing gold foil as a restorative material along with the preparation, insertion, finishing and polishing techniques. The book concludes with an extensive discussion of restoring badly broken down teeth.

The authors of this text have taken a fresh approach to a traditional field in dentistry. They combine both the conventional and more current thinking of the cavity preparations. The illustrations of the principles discussed are excellent. One feature that could be improved is the photographs — due to the printing process, they have lost some sharpness of detail and tend to be difficult to understand.

This text would complement any dentist's bookshelf. Δ

*This book was reviewed by:
David A. Scott, BSc, MSc, DDS,
University of Alberta
Edmonton.*

COLOUR ATLAS OF A NEW CONCEPT OF ENAMEL CARIES

Written and published by
L.K. Bandlish

*Printed by Avrohill Ltd., England.
105 pages*

Since this book has no publisher I was unable to discover its cost in Canada.

This colour atlas consists of three parts, the first contains the authors opinions on certain aspects of the formation of caries. The other two parts are collections of coloured photographs of approximal caries in Part II and miscellaneous other sites of carious lesions in Part III.

The author claims "There are many

contradictions in the literature on enamel caries. This book attempts to find some answers to some of these. . .". Unfortunately he has not attained this goal. For example, he recognizes the enamel susceptibility to caries in the living organism, yet wants to suggest that "further research should be carried out in the field of approximal caries on the teeth of cadavers". He criticizes other texts for overlooking the "clinical picture" and he suggests cadavers!

The author appears to be a well-intentioned clinician with skills in photography. His photographs are certainly colourful and in focus. There must have been a considerable time and effort gone into the formation of this book. However, I found his opinions unsubstantiated, his conclusions faulty and his references scanty (25). I have no choice but not to recommend this book. If there is a student about to embark on the study of enamel caries, I would strongly recommend "Understanding Dental Caries" by Gordon Nikiforuk. I would strongly recommend these two volumes to L.K. Bandlish also. Δ

*This book was reviewed by:
Trevor J. Harrop, LDS, DDS, MS, PhD.
Professor
Department of Clinical Dental Sciences
Faculty of Dentistry
The University of British Columbia*

DENTAL PHOTOGRAPHY

by Philip Wander
and Peter Gordon

*Published by the British Dental Association
96 Pages*

This work on Dental photography, published in association with the British Dental Association's eighth dental teach in. The book is comprised of eight chapters with 142 colour and 117 black and white photographs. The quality of printing and the photographs are reproduced very well on excellent quality stock making up this spiral bound volume. The general sophistication in technique and equipment we take for granted in North America seems foreign to the authors and although much of the book is well written and has many excellent points of discussion, much of the book is lacking in up to date techniques, equipment and is often contradictory.

The ill-informed Margaret Seward begins the Foreword by explaining that this work is the first book in the English language to be published on this subject,

which of course I and many others take exception.

The book is divided into eight chapters beginning with the use of photography in general practice, where the authors present a number of very good ideas for the implementation of photography in the dental practice. This is followed by a very thorough discussion of close up photography and general photographic principles as they apply to macro work, the chapter is well written however often is too technical for the requirements of the average dental practitioner.

The third chapter deals with equipment, unfortunately after discussing the standard features to look for, and what is best used, the author suggested the use of a piece of equipment that is outdated, and is contradictory to what was suggested in the first place. The lighting systems described are outdated and do not have enough power for use in the dental field and the discussion does not always allude to the inherent problems of each system. The common problems experienced with macro lighting and the theory of lighting presented are written well, thorough and excellent in content. The discussion on accessories is very good and the author

presents some interesting uses for common mirror tiles for the photography of dental models.

Chapter four deals with the techniques for dental photography, this is a general discussion of how to hold the camera, position the patient, and how to hold the mirrors and retractors. There is an excellent discussion on callibration and magnification ratio determinations for lenses where the ratio is not already marked. General guidelines are given for focusing and composition for anterior and lateral views. The photographs in this section are very good and informative.

The fifth chapter is a description of equipment available in the U.K., this is quite limited in comparison to the equipment we have available in North America. There is however a very good discussion of instant photographic systems available.

The next chapter is a discussion of the applications of photography in the practice with a brief discussion of copying radiographs, however much of the discussion is related to the British MGDS exam requirements and is not very useful to the average North American Practitioner.

Chapter seven deals with how to present your photographs, mounting and title slides, this is an excellent discussion of presentation and mounting, however the title slide section is very brief and gives only a limited idea of the possibilities. For the person interested in this aspect of photography, many well written books are available for these subjects, however I commend the authors for including this discussion in the text as it may prove to be a quite useful quick info area for many readers.

The next chapter discusses video techniques and equipment. This section deals more with equipment availability than its actual use in the dental office, again, in North America we have the luxury of abundant supply of equipment information, and perhaps a text dealing with the use of video in the dental office would be helpful.

The final section of the book shows numerous before and after photographs which is suggested to be used for patient management. These photographs can be shown to patients chairside to explain various procedures in dentistry. Some of these photos are excellent while others may not be suitable due to differences in technique and possibly undesirable material being shown especially for the queasy patient.

This book is a bright and shiny work which has many good ideas and informative material, however it is lacking in discussion of North American techniques and equipment and some of the recommendations do not seem to follow the ideals put forward in the discussions of equipment. For the North American practitioner who is interested in beginning photographic applications in his office this book will act as a good supplement to a better informed work to give some different ideas and uses for photography in the dental office, it is an enjoyable book to read and the photographs and quality of the printing are excellent. Δ

*This book was reviewed by:
R.M. Goodlin, DDS,
Aurora, Ontario.*

LE SIDA ET LA MÉDECINE DENTAIRE

par Michel Lévy, DMD

Centre de Documentation
Département de santé communautaire
Hôpital Saint-Luc
1001 rue Saint-Denis, 6^e étage
Montréal (Québec) H2X 3H9
69 pages, \$10.00

Cet ouvrage de 69 pages traite du syndrome de l'immuno-déficience acquise et

**ALL THE NEEDLES
YOU'LL EVER NEED...**

Uniject[®]

sterile, non-toxic, non-pyrogenic
disposable dental needles

**WITH ALL THE FEATURES
YOU'LL EVER NEED**

DOUBLE-BEVELLED POINT
for extra sharpness. Stainless
steel silicone-coated shaft
designed to lessen patient
discomfort.

FLANGED HUB
designed for easy
attachment to syringes

PLASTIC NEEDLE HUB
designed to prevent
needle breakage
during injection.

 Hoechst and ®. Reg. Trademarks
of Hoechst AG, Germany (West)

Hoechst 
Hoechst Canada Inc., Montreal H4R 1R6

de toutes ses implications en médecine dentaire.

Vous y trouverez un résumé des principes épidémiologiques de diverses maladies infectieuses, notamment du Sida, de même que des modes de propagation de ces maladies ainsi que des méthodes utilisées pour prévenir la contagion. Une description des diverses manifestations du Sida et du para-Sida permet au dentiste de reconnaître les signes buccaux de cette maladie.

L'auteur fait aussi état dans le "Sida et la médecine dentaire" des modalités de traitements dentaires offertes aux patients atteints de Sida ou des formes moins graves de cette maladie.

La conclusion discute du problème de la responsabilité légale et professionnelle du dentiste envers ses patients. Δ

*Ouvrage revu par
Pierre Desautels, professeur
Faculté de médecine dentaire
Université de Montréal*

DENTAL COMMUNICATION

D.W. Chambers and
R.G. Abrams

*East Norwalk, Connecticut:
Appleton-Century-Crofts, 1986.*

This practical "Guide to more effective communication in dental care" refers to "realistic situations in dental practice". The book is designed as an applied reference book for use by students in dental, dental hygiene, and dental assisting programs and by dental office staff. The 296 page text includes an introduction, three main parts, and an index. The three parts deal with basic communication skills, communication between patients and professionals, and communication among office staff. Each chapter includes some text, a case and its analysis, references, and exercises intended to develop skill in communication. The authors suggest that the text may be used selectively since each chapter has a different focus.

Part I provides the foundation in the basic communication skills of listening, empathy and rapport, non-verbal communication, persuasion and motivation. The roles of power and chauvinism and assertiveness in the communication process are also identified. In Part II the basic skills are shown at work in the relationship or "Treatment Alliance" between the dental professional and the patient. History taking, interviewing, treatment planning and informed consent are covered, and the special challenges of the disturbed, non-compliant, or very young

patients are discussed. Five very strong emotions — anxiety, anger, depression, apathy, and impatience — are defined, and suggestions are provided for the diagnosis and management of inappropriate emotional reactions. The relationships among staff members or the "Work Alliance" are discussed in Part III, with emphasis on feedback and the skills involved in telephone communication and the employment interview. A final chapter on speaking in public emphasizes the role of this opportunity in creating a favorable public image of the dental professional. The benefits of sound treatment alliances, according to the authors, are increased job satisfaction, increased busyness, fewer lawsuits quality of work, time savings, and improved patient health. The suggested work alliance benefits are improvements in staff morale and staff productivity including job satisfaction, time savings and better patient care.

The text of this book is made readable and easily digestible with the use of sections, headings and tables in print of varying size and density. This style of the text encourages the reader to stop, regis-

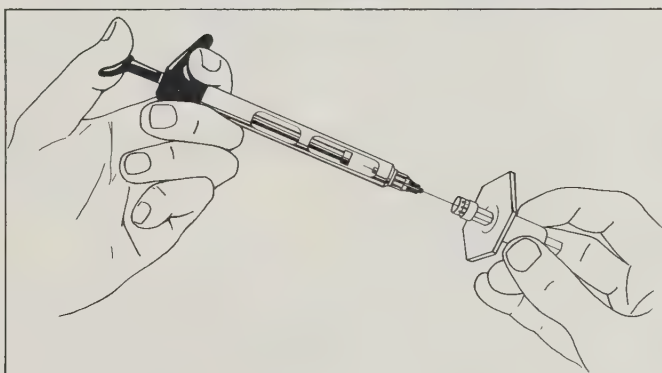
ter thoughts and ideas, and reflect on prior learning. As a guide to improved communication in the private dental office the book is a practical 'self-help' resource with realistic case presentations. There are, however, a few limitations. Within the content, the communication skill of feedback is applied only to the work alliance. As a basic communication skill 'feedback' is applicable to both the treatment and work alliances. Moreover, although the authors broadly define communication as "... the skill of sharing needs to create better relationships among people" (p. vii) the content is limited to the dental office setting. The communication skills which are critical in the development of leadership within the profession, or in those activities more commonly associated with dental public health, such as dental health promotion, are not addressed. The title consequently implies a broader scope than is actually provided by the text. Δ

*This book was reviewed by:
Joanne Clovis, Dip. DH, BEd, MSc
Sr. Dental Health Consultant
Dental Health
Alberta Community and Occupational Health*

NEEDLE STICK INJURIES A RISK OF SERIOUS INFECTION TRANSMISSION.

Now, Hoechst introduces
simple, effective protection

Uniject® NEEDLE GUARDS



Easy to use
Uniject Needle Guards, for use with
Uniject Disposable Dental Needles.

Uniject® NEEDLE GUARDS BECAUSE THE RISK IS SERIOUS

 Hoechst and ®, Reg. Trademarks
of Hoechst AG, Germany (West)

Hoechst 
Hoechst Canada Inc., Montreal H4R 1R6

Computers in Dentistry

L'informatique en médecine dentaire

1. Diehl, M. "Strategy for large-scale dental automation." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 745-53.
2. Duret, F. "Computerized dentistry." *Dental Practice Management*. Winter 1986, pp. 10-3.
3. Eisner, J. "Computer talk. Prospects for a new form of communication in the dental profession." *Canadian Dental Association Journal*. Feb. 1987, v. 53, no. 2, pp. 108-11.
4. Freyberg, B.K. "How computers are changing the practice of dentistry." *Dentistry*. Feb. 1986, v. 6, no. 1, pp. 24-5, 29.
5. Garsson, B. "Computerized accounting for the dental office. Using horizontal applications general ledger software." *Dental Clinics of North America*. Jan. 1988, v. 32, no. 1, pp. 149-71.
6. Gerber, I.A. "A computer for every dental office." *New York Journal of Dentistry*. Mar. 1987, v. 57, no. 2, pp. 66-7.
7. Hildebolt, C.F. and Vannier, M.W. "Automated classification of periodontal disease using bitewing radiographs." *Journal of Periodontology*. Feb. 1988, v. 59, no. 2, pp. 87-94.
8. Jiamachello, P.F. and Berg, J.H. "Investigating the computerized dental office management system." *Texas Dental Journal*. Jun. 1987, v. 104, no. 6, pp. 6-9.
9. Kamp, A.A. "Moyers analysis for arch length determination in the mixed dentition adapted for the Apple II personal computer." *General Dentistry*. Jan-Feb. 1987, v. 35, no. 1, pp. 29-31.
10. Lie, I., Hoff, I. and Gjerdet, N.R. "Computerized evaluation of the effectiveness of subgingival scaling in jaw models." *Journal of Clinical Periodontology*. Mar. 1987, v. 14, no. 3, pp. 149-55.
11. Neiburger, E.J. "Dental computing applications." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 625-42.
12. Reed, O.K. "New age of dentistry merges mind and computer." *Journal of*

Dental Practice Administration. Jan-Mar. 1987, v. 4, no. 1, pp. 9-12.

13. Rekow, D. "Computer-aided design and manufacturing in dentistry: a review of the state of the art." [review article] *Journal of Prosthetic Dentistry*. Oct. 1987, v. 58, no. 4, pp. 512-6.
14. Sakaguchi, R.L. and DeLong, R. "The computer in dentistry." *Dentistry*. Dec. 1986, v. 6, no. 4, pp. 23-4.
15. Sheridan, P. "Computer-aided dentistry." *Journal of the American Dental Association*. Apr. 1987, v. 114, no. 4, pp. 505.
16. Sokol, D.J. "Increasing profitability through computerization." *Dental Clinics of North America*. Jan. 1988, v. 32, no. 1, pp. 131-48.
17. Stikeleather, J., Hensel, J.S. and Baumgarten, S.A. "The computerized dental office of the future." *Dental Clinics of North America*. Jan. 1988, v. 32, no. 1, pp. 173-90.
19. Tira, D.E., Tharp, L.B. and Lipson, L.P. "Computers in dental education. Promise of the past versus reality of the present." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 681-94.
20. Walsh, J. "Computers and dentistry — the perfect match." *New York Journal of Dentistry*. Feb. 1988, v. 58, no. 1, pp. 17-9.
21. Warnick, A.J. "Dentists aid in identification of crash victims." *Journal of the Michigan Dental Association*. Oct. 1987, v. 69, no. 10, pp. 553-6.

22. Weinberg, R. and others. "Managing orthodontic data on a small computer." *Angle Orthodontics*. Jul. 1987, v. 57, no. 3, pp. 209-18.
23. Williams, A.G. "Dentistry and CAD/CAM: another French revolution." *Journal Dental Practice Management*. Jan-Mar. 1987, v. 4, no. 1, pp. 2-5.
24. Wooten, R.K. "Computer applications in dental hygiene." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 643-55.
25. Zimmerman, J.L., Ball, M.J. and Petroski, S.P. "Computers in dentistry." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 739-43.
26. Zimmerman, J.L. and others. "Study in computer applications in dental practice." *Dental Clinics of North America*. Oct. 1986, v. 30, no. 4, pp. 731-8.

One copy of the above articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL. LIB
FAX: 613-523-7736

OCTOBER is CFDE month Give Generously

Suite 105
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6



CFDE FCED

CANADIAN FUND
FOR DENTAL EDUCATION

FONDS CANADIEN POUR
L'ENSEIGNEMENT DENTAIRE

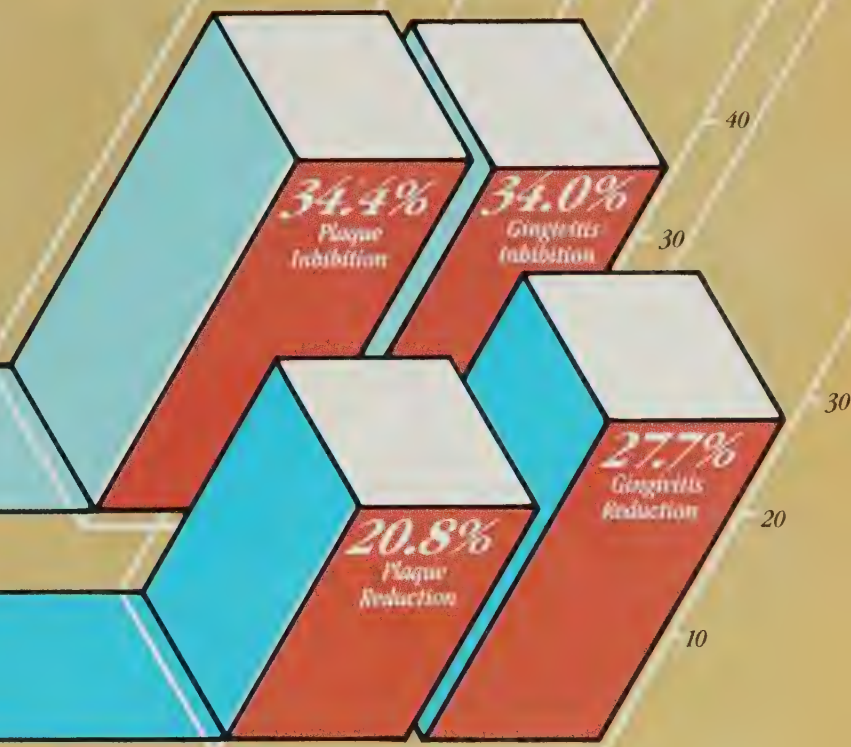
THE FIRST NON-Rx ANTIMICROBIAL ACCEPTED TO HELP CONTROL SUPRAGINGIVAL PLAQUE AND GINGIVITIS

PERCENT REDUCTION OF PLAQUE AND GINGIVITIS SCORES: LISTERINE® VS. CONTROL FROM BASELINE TO 6 MONTHS

**Helps Prevent
Plaque and Gingivitis¹**

**Reduces Existing
Plaque and Gingivitis²**

Plaque measurements were made using the Turesky
Modification of the Quigley-Hein Index,³ gingivitis
measurements using the Modified Gingival Index.⁴



NO REPORTS OF CLINICAL SIDE EFFECTS, EVEN WITH REGULAR AND LONG-TERM USAGE:

- Did not cause extrinsic tooth stain
- Did not promote calculus formation
- Did not cause mucosal aberrations
- Did not alter taste perception
- Did not promote microbial resistance

Dosage and Administration:

Instruct your patients to rinse for 30 seconds with 20 ml of Listerine twice a day in addition to brushing, flossing, and regular dental care.

DESTROYS A BROAD SPECTRUM OF PLAQUE BACTERIA*

Plaque Microorganisms Susceptible to Listerine Antiseptic	
Gram-Positive Facultative Cocci	<i>Streptococcus sanguis</i> <i>Streptococcus mutans</i> <i>Streptococcus salivarius</i>
Gram-Positive Facultative Rods	<i>Lactobacillus acidophilus</i>
Gram-Positive Anaerobic Rods	<i>Actinomyces viscosus</i>
Gram-Negative Anaerobic Rods	<i>Bacteroides intermedius</i> <i>Fusobacterium nucleatum</i> <i>Leptotrichia buccalis</i>
Yeasts	<i>Candida albicans</i>

*in *in vitro* testing

Listerine contains a proven combination of thymol, eucalyptol, methylsalicylate and menthol in a hydroalcoholic vehicle. These antimicrobial ingredients are active against the plaque microorganisms commonly associated with gingivitis.

- DePaola LG, et al: Chemotherapeutic inhibition of supragingival plaque and gingivitis development. *J Dent Res* 65:274 (Abstract 941), 1986.

In this six-month, double-blind study, twice-daily use of Listerine Antiseptic with regular oral hygiene following professional prophylaxis inhibited the development of both supragingival plaque and gingivitis by 34% compared to the hydroalcoholic control.¹

	Listerine	Control
Plaque Index	1.15	1.75
Gingival Index	0.92	1.39

- Lamster JB, et al: The effect of Listerine Antiseptic on reduction of existing plaque and gingivitis. *Clin Prev Dent* 5:12-16, 1983.

This six-month, double-blind study demonstrated the efficacy of twice-daily use of Listerine in reducing plaque and gingivitis. Scores measured a 20.8% reduction in supragingival plaque and 27.7% reduction in gingivitis in the Listerine group — a significant improvement over normal oral hygiene alone for the Listerine group versus the vehicle control.²

	Listerine	Control
Plaque Index	1.93	2.44
Gingival Index	1.20	1.66

- Turesky S, et al: Reduced plaque formation by the chloromethyl analogue of Vitamin C. *J Perio* 41:41-43, 1970

- Lobene RR, et al: A modified gingival index for use in clinical trials. *Clin Prev Dent* 8:3-6, 1986.

WARNER LAMBERT

*Caution: Do not give to children under 6. Active Ingredients: Alcohol 21.90% w/v, Eucalyptol 0.91% w/v, Thymol 0.063% w/v, Menthol 0.042% w/v.

PAAB
CCPP



LISTERINE®

...First-line antimicrobial defense for your patients.

COUNCIL ON DENTAL THERAPEUTICS
AMERICAN DENTAL ASSOCIATION



"Listerine has been shown to help prevent and reduce supragingival plaque accumulation and gingivitis when used in a conscientiously applied program of oral hygiene and regular professional care. It has not been shown to have a therapeutic effect on periodontitis."

Commentary on article 'Porcelain Laminates'

The article on "Porcelain Laminates" by Dr. John Nasedkin in your April issue (JDA Vol. 54, No. 4, pp. 248-255), has many errors and misconceptions. I am therefore compelled to comment.

The author states that "the incisal enamel should be left intact and the finish line placed at about .75 mm from the incisal edge". To date no longterm differences in retention rates have been observed between preparations to the incisal edge and those carried over the incisal edge. In placement however, the veneer which overlaps the incisal edge is easier to consistently place to margin. The author also states that "supra gingival margins require a long bevel". Porcelain veneers can *not* be fired to a long bevel since the porcelain rounds over. A well defined chamfer finish line is indicated.

When discussing the stained or discoloured areas in the tooth structure Dr. Nasedkin states that "the dentist must advise his technician to place two layers of die spacer over the location of an intended correction". Does it not make better sense to add modifiers (glassionomer-tints) before the impression is taken so that there is a relief under the veneer automatically?

Endoposts and Paraposts **do not** strengthen non-vital teeth. The primary function of a post is for retention. Previous studies and more recently a study presented to the I.A.D.R. by Dr. D. Gratton, et al has shown no root strengthening by posts. Current feeling seems to indicate that when placing porcelain veneers (overlays) on non-vital teeth with minimal access openings, posts are not indicated. A conservative internal crown restoration with bonded composite will suffice.

The author claims "Enamel equivalent" bond strengths to dentin which has "overcome the problem of veneer sensitivity". Veneer sensitivity has not been a problem. Over and over again we have come to realize that the bond testing to a flat surface, non-vital dentin, and without positive fluid flow may have little relevance to three dimensional contraction vectors intraorally. I submit we do not have longterm clinical studies showing that we can bond as reliably to dentin as enamel even with the "third generation".

For the sake of brevity I will finish with one last observation. Dr. Nasedkin states on pg. 253 that "porcelain veneers are monochromatic" and "that it is up to the dentist to custom stain and tint the veneers". The main advantage of porcelain veneers is that they are **not** monochromatic but can be made to look vibrant, alive and multicoloured by the technician. Dr. Nasedkin makes the insertion process seem more difficult than it is. This unfortunately will frighten clinicians away from a simple, exciting, fulfilling patient service! Δ

Leendert Boksman, DDS, BSc
Associate Professor
Operative Dentistry
University of Western Ontario

Dr. Nasedkin responds

I am grateful for the comments and regard the differences more as a matter of perspective than a question of errors and misconceptions.

The April article was specifically directed to the general dentist and I was charged with the task of providing foundational information based on our experience with practicing dentists in a clinical study club setting. The presentation therefore is very much that which we have found practical for most dentists to utilize on a routine basis and it may differ somewhat from the experience of those in an academic setting or conducting research projects.

I am pleased that Boksman is able to report no difference in long-term retention rates for those preparations which lap the incisal or those which do not. Certainly I agree that the veneer with the lapped incisal is easier to place and we have found that many technicians will routinely lap the incisal even if the tooth is not prepared in this area — expecting the dentist to remove the incisal cap as part of the finishing process.

In regard to the criticism relative to the long bevel, I should like to point out that later in the paper on Page 254 I indicate "Visible supra-gingival margins require finishing of the overbuilt porcelain back to the tooth contour since the ceramist is unable to build a feather edge or bevelled margin in porcelain without bulk." If one is to finish to the chamfer in this labial location, especially on an upper anterior tooth, the line of demarcation becomes too evident since the technician cannot match

the tones and nuances of tooth structure to an absolute degree. With the long bevel, the restoration is allowed to blend into the tooth with a transition from porcelain to enamel more effectively.

The commentary about the stained and discoloured areas appears to result from a mis-reading of the paper. At the outset of this section I pointed out that in cases where deep discolouration exists in dentin, a glass ionomer cement may be placed to cover the stain. I follow with suggestions for the use of tints and opaques and indicate that the die-spacer approach should be used when the dentist anticipates some correction at the placement appointment. I see no disagreement in this regard.

Post placement in root-filled teeth to be veneered is still an open subject. What I wished to convey was the idea that a post core could be utilized to resist deformation (flexion) of the tooth through applied shearing forces. The tooth is only weakened if additional tooth structure is **removed** in order to cement/bond the post into place. The recommended posts are sufficiently conservative to adapt well to the root canal and while the choice of word was not precise, most dentists would interpret my intention as something near strengthening.

In the days of first generation dentin bonding agents, veneer sensitivity would occur in those teeth where dentin/cementum was involved. In 84 there was only one so-called dentin/enamel combined bonding agent (Caulk Unibond) and although intra-enamel preparation has always been preferred, some older, longer teeth would be sensitive — simply due to the finishing processes and the contraction vectors resulting from the cementation process. At that time Class V composites were also unreliable and my statement in relation to the third generation dentin bonding agents indicates that a more predictable result may now be secured.

The closing paragraph of Dr. Boksman's letter places an unreasonable and impractical obligation on the dental technician. I maintain as does Paul Muia in his book entitled the *Four Dimensional Color System*, that dentin provides much of the underlying color which is projected through the enamel. This is evident in the difficulty of laminating teeth which are strongly tetracycline stained. Within the space of .5 mm the technician is able to

do little more than complete the two or three firings needed to build the porcelain and cannot be expected to provide the numerous layers incorporated in a PFM porcelain crown. The internal etching effectively removes all colour from the inner layer and it becomes the dentist's enjoyment and artistic exercise to characterize the veneers as outlined in Figures 1A and B. Only through teamwork of the dentist and the technician can the exciting fulfilling patient service occur. Δ

John N. Nasedkin, DDS, MRCD(C)

'Some amusement' in president's column

It is with some amusement that I have read President Markey's editorial (June 88) concerning the detrimental effects of too much continuing education. It would almost appear that if education isn't provided by a non practicing university professor it isn't worth learning or at the very least it is tarnished knowledge. Some of my most enlightening moments have been in my monthly study club meetings where nine dumb dentists get together and work through mutual problems. With regard to the evils of "the learning circuit", I have heard or read most of them from the original Bob Barclay, through Bill Blatchford through Dick Barnes to Bob Brandon (May 88). The marketing message is the same. There is really not much new information available. It all comes down to Dr. Markey's line "What about quality of care and compassion for our patients?" If the message is the same then the only difference is in the effectiveness of presentation and the degree of follow-up after the courses. When bombarded with the numerous communication courses ask your colleagues "Who is effective? Who can I learn from? Who cares about their students? The good members of the "learning circuit" will survive only through the referrals of the participants. The hucksters and ineffective teachers will soon be out of business.

This letter is not meant to be overly critical of Dr. Markey but to assure him that with a little balance everything is okay on the continuing education scene. Δ

Dr. J.D. Zucchiatti

Terrace, B.C.

Canadian hospital dental department is engaged in HIV and AIDS research

In the introduction to the article entitled "Oral Manifestations of Human Immuno-

deficiency Virus Infection, Recognition and Diagnosis" by Dr. J.B. Epstein and Dr. S. Silverman, Jr. appearing in the June 1988 edition of the Journal, the statement is made that "there is no Canadian centre involved in management of oral and dental findings in a large number of HIV positive patients on a regular basis".

I would like to bring to your attention that since January 1986, the Dental Department of the Sir Mortimer B. Davis - Jewish General Hospital in Montreal has been actively engaged in research with respect to oral manifestations of HIV positive and active AIDS patients.

A separate high-risk unit was established in March 1987 and to date, 143 patients have been treated on a regular basis. Our AIDS research program conducted in association with McGill University and funded by National Health and Welfare Canada is entitled "A Clinical and Laboratory Longitudinal Evaluation of the Oral Health Complications of Patients with AIDS" and has reached the mid-point in a two year study. Applications have been made for further grants with respect to other aspects of this research.

Numerous papers submitted by Dr. D. Pekovic, former Director of Dental Research, in conjunction with myself, have been published in refereed journals.

We trust that this information will modify the statements presented in the above mentioned article. Δ

Dr. Mervyn Gornitsky,
Chief, Department of Dentistry
The Sir Mortimer B. Davis -
Jewish General Hospital
Montréal, Québec

Editor's Note: Dr. Gornitsky refers herewith to some of the published papers:

Pekovic D.D., Chausseau J.-P., Lapointe N., Michaud J., Garzon S., Strykowski H., Tsoukas C., Gilmore N., Goldman H., Gornitsky M., Popovic M., Dupuy J.-M.: Detection of HTLV-III/LAV antigens in peripheral blood lymphocytes from patients with AIDS. Arch Virol 91:11-19, 1986.

Pekovic D.D., Garzon S., Strykowski H., Ajdukovic D., Gornitsky M., Dupuy J.-M.: Immunogold labeling of HTLV-III/LAV in H9 cells studied by transmission electron microscopy. J Virol Meth 13:265-269, 1986.

Pekovic D.D., Ajdukovic D., Tsoukas C., Lapointe N., Michaud J., Gilmore N., Gornitsky M.: Detection of HIV in salivary lymphocytes from dental patients with AIDS. Am J Med 82:188-189, 1987.

Pekovic D.D., Gornitsky M., Ajdukovic D., Dupuy J.-M., Chausseau J.-P., Michaud J., Lapointe N., Gilmore N., Tsoukas C., Zwadlo G., Popovic M.: Pathogenicity of HIV in lymphatic organs of patients with AIDS. J. Path 152:31-35, 1987.

Gornitsky M., Pekovic D.D.: Involvement of human immunodeficiency virus (HIV) in gingiva of patients with AIDS. In: Recent Advances in Mucosal Immunology, Part A. Mestecky J., McGhee J., Bienenstock J., Ogra P. (eds), Plenum Publishing Corp., pp. 553-562, 1987.

Pekovic D.D., Gornitsky M., Garzon S., Strykowski H., Adamkiewicz V.W., Ajdukovic D.: Mechanisms of HIV-associated immunosuppression. In: Immunobiology of Cancer and AIDS: Etiology, Diagnosis and Management. Allan R. Liss, Inc., New York, 1988.

TYLENOL*

acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests. N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine is available from the manufacturers of its oral and parenteral dosage forms, or contact your nearest Poison Control/Information Centre.

DOSAGE:

Adults:

650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

Children:

Based on Weight

10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

SUPPLIED:

TYLENOL* Drops: Each 1.0 mL contains 80 mg acetaminophen in an orange-coloured, non-alcoholic liquid vehicle with a new improved, fruit-flavoured taste. Available in bottles containing 15 mL† and 24 mL† and a calibrated dropper

‡ Sweetened with sodium cyclamate and sorbitol.

TYLENOL* Elixir: Each 5 mL contains 160 mg acetaminophen in a cherry-flavoured, non-alcoholic red liquid vehicle. Available in bottles containing 100 mL† and 500 mL

TYLENOL* Chewable Tablets 80 mg: Each round pink tablet, scored one side and engraved "TYLENOL" the other side, contains 80 mg acetaminophen. Available in bottles of 24† tablets

TYLENOL* Junior Strength Caplets 160 mg. Each white caplet, scored on one side and engraved "TYLENOL 160" the other side, contains 160 mg acetaminophen. Available in blister packs of 20†.

TYLENOL* Caplets 325 mg: Each white caplet, scored on one side and engraved "TYLENOL" the other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50† and 100 caplets

TYLENOL* Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" the other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50†, 100 and 500 tablets.

TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" the other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side and "500" the other side contains 500 mg acetaminophen. Available in bottles of 30†, 50 and 100† tablets.

†container provided with a child-resistant closure

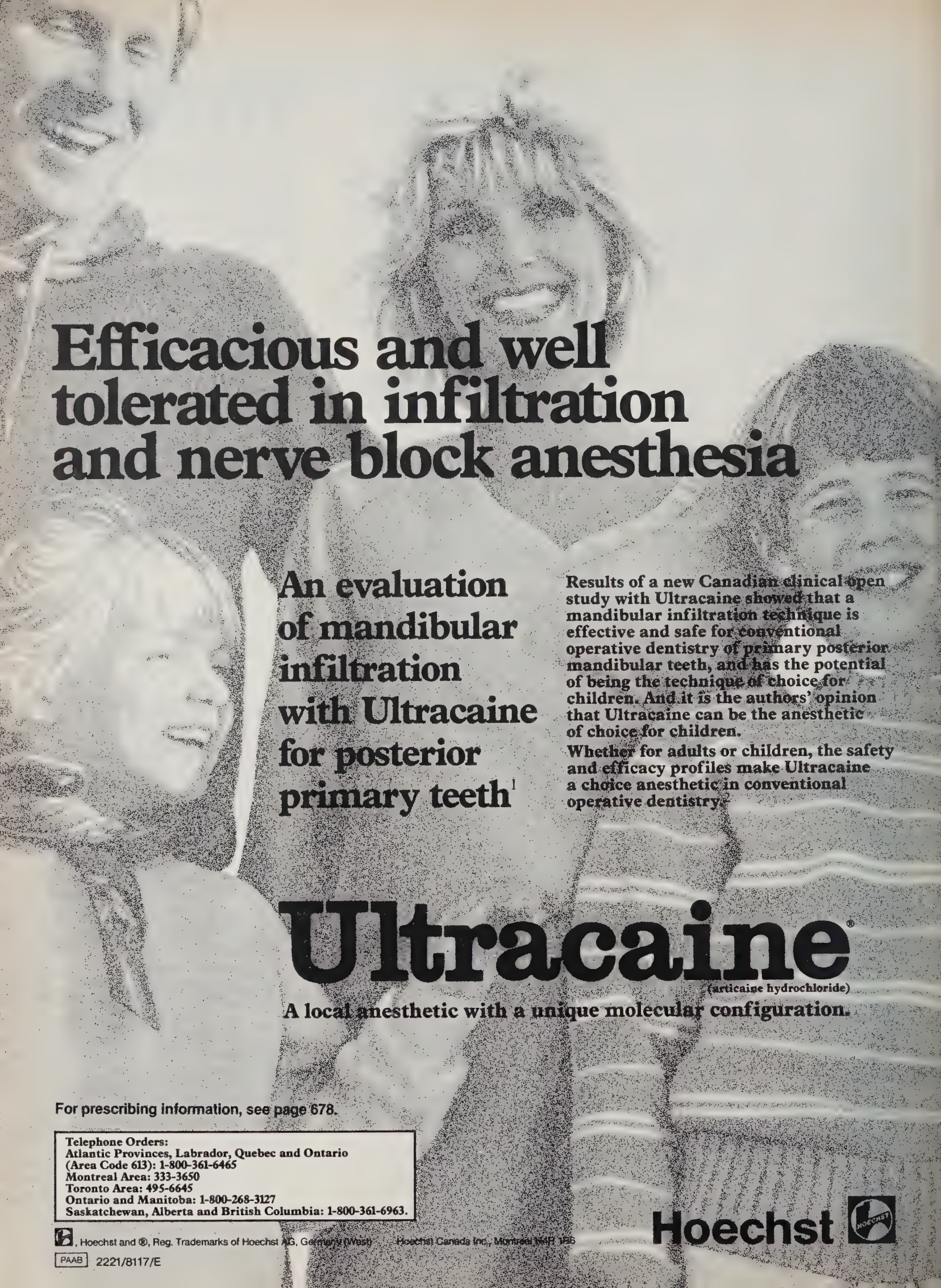
McNEIL

ATE-04-9/87

PAAB
CCPP

© McNeil Consumer Products Co., Guelph, Ontario N1K 1A5

*Trademark © McNeil Consumer Products Co. 1987



Efficacious and well tolerated in infiltration and nerve block anesthesia

An evaluation of mandibular infiltration with Ultracaine for posterior primary teeth¹

Results of a new Canadian clinical open study with Ultracaine showed that a mandibular infiltration technique is effective and safe for conventional operative dentistry of primary posterior mandibular teeth, and has the potential of being the technique of choice for children. And it is the authors' opinion that Ultracaine can be the anesthetic of choice for children.

Whether for adults or children, the safety and efficacy profiles make Ultracaine a choice anesthetic in conventional operative dentistry.²

Ultracaine[®]

(articaine hydrochloride)

A local anesthetic with a unique molecular configuration.

For prescribing information, see page 678.

Telephone Orders:
Atlantic Provinces, Labrador, Quebec and Ontario
(Area Code 613): 1-800-361-6465
Montreal Area: 333-3650
Toronto Area: 495-6645
Ontario and Manitoba: 1-800-268-3127
Saskatchewan, Alberta and British Columbia: 1-800-361-6963.



Hoechst and ®, Reg. Trademarks of Hoechst AG, Germany (West)

Hoechst Canada Inc., Montreal 3481 126

Hoechst



Specialty Features

Computers in Dentistry

Ralph Crawford, DMD

• PART ONE •

CAD/CAM: The computer moves chairside

The Computer Moves Chairside!

For years the computer has been well established in the dentist's reception area and business office. Now it has moved into the operatory.

In this issue, the Journal staff endeavors to inform its readers of some of the recent technology which undoubtedly will influence the practice of dentistry in the future.

In describing certain products and methods, the Journal does not necessarily advocate one over the other, or ascribe that it is the only one available. The Journal wishes to thank Dentsply International, York, Pennsylvania and Tekscan Inc. of Boston for their assistance in the preparation of the material. We are also grateful for the opportunity granted to attend the CAD/CAM Symposium in Vancouver and for the interview with Dr. Francois Duret.

On March 19, last, in Vancouver, a bit of history was made in Canada. For the first time, leaders in the field of CAD/CAM met in one room and presented a clinic to a group of interested dentists and technicians, outlining a system of prosthetic fabrication that will revolutionize dentistry as we know it today.

For years, dental office personnel have utilized computers at their desks and in their business offices. Now the computer is also in the operatory and directly transmitting information from the oral cavity to the computer-assisted design (CAD) and computer-assisted manufacturing (CAM) phases. A micro-milling machine will produce a finished crown or bridge of prepared teeth, ready to be cemented in less than one hour.

Dental prosthetics will never be the same again.

CAD/CAM is the first major change in technology since 1907, when Dr. Taggart demonstrated the casting of gold inlays. Certainly the lost wax technique was known to the ancients; a recent Toronto exhibition of Holy Land artifacts displayed such metal ornaments created

20 centuries before Christ. Now, however, Vancouver's March audience was told that impressions, models, wax and casting machines may well be exhibited as historic relics in the next century.

Dr. John Nasedkin, a Vancouver prosthodontist who mentors TEST, the Esthetic Study Team, arranged the one-day symposium that brought together Dr. James P. Duncan, Mechanical Engineering Professor Emeritus from the University of British Columbia; Dr. François Duret of Grenoble, France, originator of the application to dentistry of the CAD/CAM system; Dr. Diane Rekow of Minneapolis, an instructor in Orthodontics and a Post Doctoral Fellow in Biomechanical Engineering at the University of Minnesota; and Dr. Reggie Caudill, Professor of Mechanical Engineering and Director of Robotics and Computer Graphics at the University of Alabama in Tuscaloosa, U.S.A.

Dr. Duncan, who graduated in 1941 from the University of Adelaide, Australia, Mechanical Engineering and holds a Doctor of Science degree from the University of Manchester, traced the early involve-

ment of computers in industry, particularly in the automobile sector. He has had a lifelong interest in shape reproduction, including the first uses of computers in that field back in 1954.

Dr. Duncan gave a graphic demonstration of optics engineering by displaying a perfect plaster replica of his own head — a remarkable likeness — which was computer designed and milled in minutes at a cost of \$100.00.

He indicated that for dentistry there are special added concerns and problems. Industry is used to working with simple equations such as spheres and cones, but dentists are working with natural shapes where God the Creator, He alone, knows the equation. "If we want to design it (i.e. the natural shape) then we have to have some means to equate it."

Dr. Reggie J. Caudill, who began his work independently of Drs. Duret and Rekow, is involved at the University of Alabama with developing DESS, a Dental Expert Support System, where three-dimensional imaging data of the dental arch will lead the dentists through the appropriate design



Left to right are: Drs. James P. Duncan, mechanical engineering Professor Emeritus, University of British Columbia; Dr. François Duret of Grenoble, France, originator of the application to dentistry of the CAD/CAM system; Diane Rekow, of Minneapolis, an instructor in Orthodontics and Post Doctoral Fellow in Biomechanical Engineering at the University of Minnesota; John Nasedkin, a Vancouver prosthodontist who monitors the Esthetic Study Team, and Reggie Caudill, Professor of Mechanical Engineering and Director of Robotics and Computer Graphics at the University of Alabama.

sequences and automatically manufacture dental prostheses utilizing computer controlled milling machines and robotics.

Dr. Caudill initially worked with robotics in industry attempting to decrease the time interval between design and production — leading to his work relating to the elimination of the dental impression phase and then automating the production stage. He emphasized that in attempting to achieve a one hour turnaround in the production of a crown, the quality must be maintained. Dentistry must take its lesson from the automobile industry. It doesn't matter what it costs, if it isn't quality it isn't going to survive. He indicated that in dentistry they are talking quality and precision in the range of 25 to 50 microns. The key, according to Dr. Caudill, falls back on the imaging system; can the computer actually get the data with the precision we need?

When questioned whether the future dentist will need an engineering degree, Dr. Caudill replied that certainly the dentists would have to be computer-oriented but the computer programs and the software would need to be developed in an "expert-friendly-interphase" manner.

Dr. François Duret, originator of dental CAD/CAM, outlined how he had toiled for 20 years to bring his system to the commercial market stage. It was in 1970 that he first conceived the idea that the combination of physics and the computer could revolutionize dentistry. (See below, "François Duret — a man with vision")

Following the preparation of the tooth, or teeth, Dr. Duret's CAD/CAM system is essentially a three-step procedure. The teeth are prepared traditionally, but feather edge margins are avoided. Cham-

fers and butt-edges reproduce better in the computer system. Dr. Duret is quick to point out that there is no substitute for excellent preparations. "The computer", he said, "cannot make a poor preparation better."

The first step is the Optical. The system utilizes a laser-diode scanner and a charge-coupled-device (photo receptor) to produce images of preparations and surrounding areas. As the scanner is passed over the teeth, the signals are relayed into the computer and displayed on the video monitor. A foot control allows the image to be fixed on the screen for examination, and a series of acceptable images are selected for the second step — Design. An experienced operator can complete this step in three minutes or less.

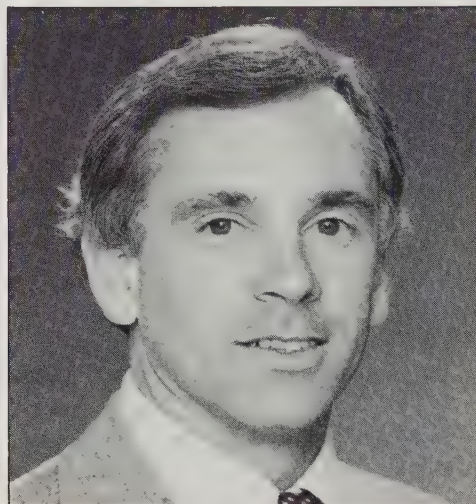
Step two, CAD, or design phase, determines the internal and external shapes of the required prostheses, right down to the exact micron space needed for the luting agent. The internal crown configuration has already been decided by the

scan of the preparation. The external requirements calls upon the computer library to select a particular morphology to be placed in the optical impression. A scan of the area before the preparation can be used to 'place' the patient's own tooth morphology back into the required space. Individual, specific anatomy and contact points can be designed as required.

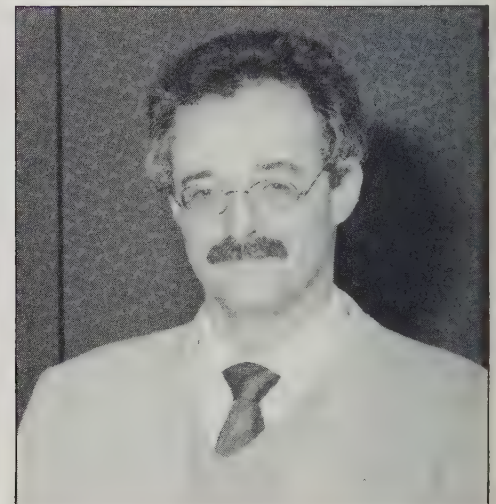
The success of any prosthesis is the occlusion. Intrinsic within the Duret system is a computer recording device which follows the movements of the mandible in order that the surface of the crown or the bridge is in harmony with centric occlusion and excursive movements. The complete design requirements — selection of prosthesis and its articulation — is achieved in under ten minutes. "And", says Dr. Duret, "it is not necessary for the dentist to know the physics, just be familiar with the computer software."

Step three is CAM, the manufacturing of the prosthesis. A three-axis micro-milling machine controls automatically, from a blank of pre-selected material, the internal/external shapes of the crown or bridge to a tolerance of 50 to 80 microns, all within 15 to 20 minutes. The audience was reminded that Dr. Duncan's and Dr. Caudill's lectures indicated that industry had been auto-milling for years, just in larger dimensions.

Dr. Duret's original material of choice was Dicor, and it produced quality results. Although it was possible to select the shade via the computer, the Dicor crowns have to be hand finished and glazed by a technician before insertion. He is currently working on new materials and cements specific to CAD/CAM. The micro-milling machines cut from a solid block of material and is not dependent upon the variables of chairside mixes. Thus, new vistas of material technology



Dr. Reggie Caudill of the University of Alabama.



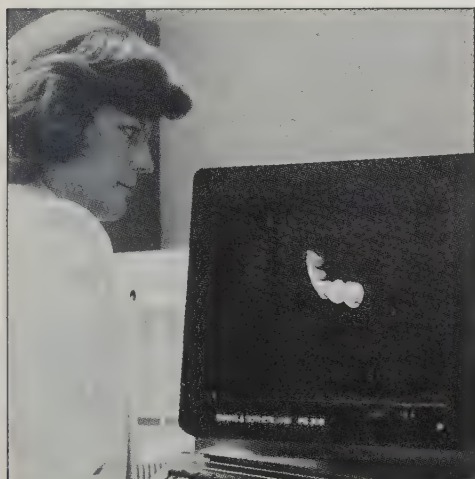
Dr. François Duret, of Grenoble, France.

are opened. Dr. Duret proposes that new material "configurations" could be aligned much like tooth substance itself.

As to integration into the dental office, there are, in Dr. Duret's opinion, three possible scenarios:

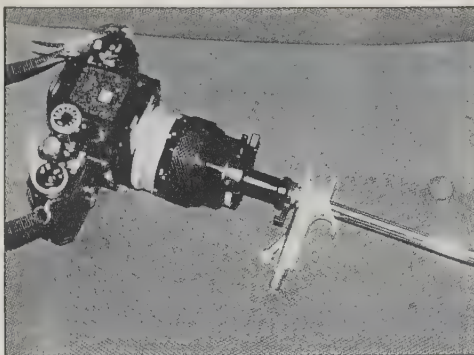
1. Complete integration: the design (CAD), and manufacturing (CAM) phases are controlled by a single dentist. A technician would be required for the CAM and subsequent color shading and polish.
2. Group office: two, three or more dentists could have an optical scanner each with one CAD and one CAM serving all.
3. Laboratory integrated: the laboratory has the CAM (most expensive component) and also the CAD which can be connected to the dentist's CAD by a modum.

When questioned as to the time frame for production, Dr. Duret said there are already systems functioning in France that are producing two crowns per day per unit. 1988 has been the target for commercial marketing. When asked about the total cost of the system, Dr. Duret replied, "I never answer this question. I am a scientific man, not a marketing man." The reported cost for the total Duret package, a scanner, CAD and CAM is said to be around \$150,000 to \$200,000.



Dr. Diane Rekow of the University of Minnesota

Dr. Rekow's background truly blends the knowledge of engineering and dentistry. For 12 years, she was an engineer, and at one time she headed a pacemaker development program. This was followed by a degree in dentistry, a certificate in orthodontics, a degree in Business Administration and a PhD. The wife of a dentist and mother of two children, she currently is developing a system of CAD/CAM that will construct restorations of gold, other metals, porcelain and



Modified 35mm camera views tooth preparation three dimensionally.

ceramic. The impression stages will be eliminated and the finished product micro-milled to a perfection fit. "The bottom line," she said, "is you must be able to produce restorations which are the equivalent to what you can now cast. If you can't do that, then you have no business releasing the system."

Dr. Rekow's experiments, (she has not yet reached the commercial stage), are designed to create a crown by first photographing the prepared tooth with a 35 mm camera containing a specially modified lens. In order to "see" the preparation three dimensionally, stereophotogrammetry is achieved by having two cameras mounted on the same system so each half of the stereo pair view the area simultaneously . . . much as it is achieved with human vision.

The lens system needs 25 mm clearance above the tooth (about two fingers width which is similar to the distance now required for conventional dentistry). The optic system records data from the top view down onto the tooth, buccal-lingual and takes information from the cheek side to record occlusion of the upper teeth. It can take dynamic information of centric occlusion, lateral excursions and protrusive paths.

The images are recorded on standard film (Ektachrome ASA 400) and developed by commercial processing. The color slides are then digitized to produce three-dimensional computer images. When the coordinates from all the images have been reconstructed and the paths of motion of the opposing dentition established, a computer based equivalent of perfectly mounted casts on an infinitely adjustable articulator is provided.

The external surface of the crown is automatically designed, taking into consideration the actual preparation, contact points, occlusion and anatomical contours, much like the Duret system. The data base has stored within it "ideal" crown forms for all 32 teeth and these are automatically modified to fit the unique

requirements of any specific case. Upon commands generated by a CAM package, the Minnesota system, using a five-axis micro-milling machine, produces a gold crown in minutes.

It is Dr. Rekow's objective that the dentist's investment will be in the neighborhood of \$5,000 US, which will provide the optic system and design software necessary to obtain the prosthesis impression and design. The information will then be sent to another location for machining. Once the system is perfected to produce quality metal full-coverage crowns, then there is the potential for partial frameworks and complete denture bases.

Truly the scientist, Dr. Rekow answered her own question, "Why bother? We have a good system now. Consider," she said, "the exciting possibilities."

- one appointment crowns.
- eliminate the need for impressions.
- no need for temporaries.
- no adjustments necessary.
- exciting opportunities for materials: new alternatives. Consider stainless steel crowns that will fit like gold. What if you could use a thinner, stronger material like titanium and have to reduce less tooth substance?

Her expectation is that the clinician can sit down with the data input within the system and say:

- this is the tooth.
- this is the occlusal scheme.
- this is the material.
- Now do It!

Although not represented at the symposium, there is a third CAD/CAM system about to emerge upon the dental market. Often referred to as the Swiss system after its developers, Dr. Werner Mörmann a dentist, and Dr. Marco Brandestini, an engineer, it trades under the name of CEREC. First demonstrated in Zurich in May 1986, their CAD/CAM is designed to produce only porcelain inlays which are reported to have excellent margin integrity. Utilizing Vita porcelain blocks, an inlay can be milled in five to seven minutes. The system does not however design the occlusal surface. This must be accomplished at chairside.

What then of the dental office of the future? CAD/CAM is here. It is not a question of when or where. It is a matter of marketing and money. The participants at the symposium varied as to their "guesstimates" of practical office systems and costs — one to two years and \$5,000 to \$200,000 — but there was no doubt that it will eventually be a dental office routine. Δ

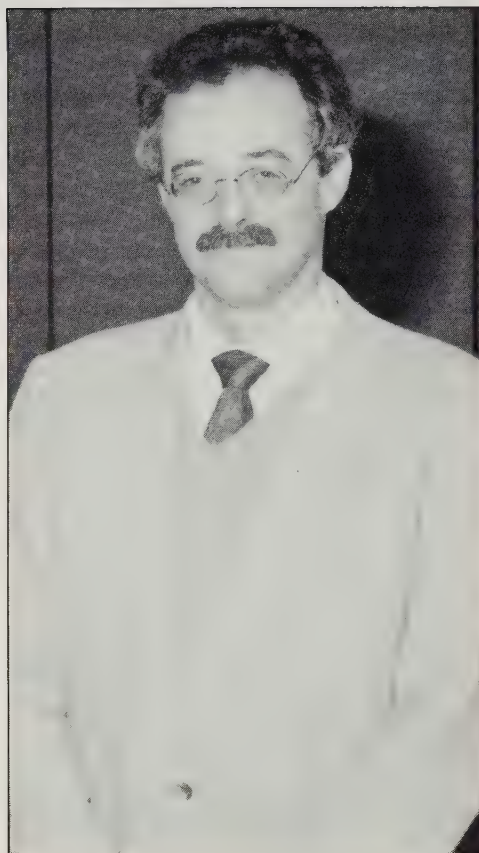
FRANÇOIS DURET — a man with vision

While the symposium in Vancouver allowed an opportunity to observe, to listen and to participate in the brilliance of Dr. Duret — he has a dental degree, a medical degree and two PhDs — it was difficult to gauge the depth of the man himself rather than just his scientific knowledge. Lectures don't allow much in the way of personal glimpses. Fortunately, a lunch-time interview was arranged.

An interpreter participated in the interview. Dr. Duret is quite conscious of his ability to converse in English. It is hard to believe that until 1986, Dr. Duret had never spoken any English. One would never guess it during his lecture. Although heavily accented, the lecture was flawless and perfectly understandable. He is sensitive however to language difficulties during spontaneous question and answer episodes.

Dr. Duret was about 23 years of age when he developed the concept of applying the knowledge of computers and robotics to dentistry. He virtually laboured alone in his research but was heavily influenced by Dr. Joseph Thouvenot in 1975 and this encouragement no doubt helped overcome the "low points" during twenty years of endeavour. When asked to describe the highs and lows, he modestly replied, with a quiet smile, that probably his first low point occurred in 1979 when he was fired from the University of Lyon because his superiors felt his ideas were "crazy".

Discouraged perhaps, but not deterred, he was to enjoy his first "high" in 1983 when his CAD/CAM, a prototype, was demonstrated for the first time outside of a laboratory at La Garancière, the Dental Congress, in Paris. Possibly the second high point of achievement occurred in 1985 when for the first time in public, at the Association dentaire de France meeting in Paris, he prepared and fitted a crown for a patient (his wife! who is also a dentist). A milestone had been reached. However, modestly, Dr. Duret realized that the prototype of 1985 was far differ-



Dr. François Duret

ent from that which would be required for the dental office.

That first crown required eight engineers and two and one half hours to complete. "Probably the most expensive crown in history," said Dr. Duret.

First commercial system this fall

Another milestone will be achieved this fall when the first commercially designed Duret CAD/CAM systems will be marketed and will produce for dentists crowns that will be every bit as good (or better!) than that produced by the conventional lost wax techniques.

The interview probed several parameters of the CAD/CAM system, among which was "what is the advantage to the patient?". Dr. Duret replied that probably the patient will not financially benefit from the system but will be

more satisfied. He indicated how much more convenient it was to have preparations prepared and a restoration cemented in a one hour appointment rather than the two appointments (or three!) that are required today. Not only is saving time an advantage, but the patient will also be glad to circumnavigate the added inconvenience and discomfort. An added benefit could well be a more precise prosthetic appliance, better fitting and superior occlusal integrity.

Questioned how CAD/CAM would effect dental education, Dr. Duret said that the system would have little effect upon the time involvement of the dental student but increased computer skills would be necessary. Eventually there will be a decrease in student time once conventional impression making, model pouring, waxing and casting procedures are phased out. At Dr. Duret's university, CAD/CAM is already a mandatory requirement.

'Must be ready to adapt'

Dr. Duret indicated that CAD/CAM will become common place in the next five to ten years and universities must be ready to adapt and change quickly. Otherwise industry will take over. Dental companies are already closely following the project and will be involved with the dental material prospects of the future. The dental trades currently have their own agendas to follow, he implied, but as always, they are opportunistic to take advantage of innovations. Dr. Duret said, "the software of CAD/CAM is the very heart of the system and it is in this area that industry cannot easily copy."

Essentially a private practice dentist, Dr. Duret carried on his own practice for 15 years, but has little time for it now. The bulk of his time is in research and development and the necessary travelling throughout the world to demonstrate his beloved CAD/CAM. He enjoys the travel as it gives him great opportunity to associate with confrères and scientists but he does regret being away so much from his wife and three children. △

THE COMPUTER GIVES NEW VISION — Literally

Computer technology and miniaturized cameras now allow new vistas and new insights for dentists and patients. Recently introduced as a first to the Canadian market, Dentsply's DENTALVISION opens new communication channels at chairside never previously realized. Now patients, for the first time ever, can see all those confusing things dentists have been talking about for years. Bewildering dental terminology can be directly associated with a photo on a TV monitor.

Dentistry in the last decade has witnessed remarkable changes. Decreasing caries ratios, greater utilization of dental plans, enhanced emphasis on prevention and increased significance of cosmetic dentistry are daily conversations in dental circles. A rising dental "IQ" for patients, and stress upon dentists for marketing has only expanded that age-old dilemma of communication.

Communication between the profession and patients relies so much upon "one-to-one" relationships. Dentistry is often referred to as the "last of the cottage industries", and its entire prevention program pivots on communication. The computer at chairside seems about to make communications just that much easier.

A tiny video camera, the size of a pen-

cil, can go anywhere within the oral cavity normally accessed by a common mouth mirror.

The camera and screen can be used for cosmetic imaging indicating the "before and after" visuals prior to actual treatment. Any photo of the oral cavity can be "frozen" for easier viewing and discussion. Instant Polaroids may be taken for patient education and for explanation "to the folks at home".

Photos may be filed as permanent records or used for insurance purposes. The system can likewise produce dynamic video tapes and storage facilities on floppy disks.

How well dentists know that patients accustomed to pictures of the complexities of the lunar surface are perplexed at root canal configurations and gingival contours. No more, say the proponents of DENTALVISION!

An even smaller video probe, available as an add-on, and only 1.27 mm in dia-

meter (about the size of a #25 file), can now digitalize onto a video screen a root canal up to 200X magnification. The video probe can be inserted periodontally into any type of pocket and dramatically enhance a patient's understanding of a disease process and its prevention. Similarly, the same probe camera can project a photo of any cavity preparation onto the TV monitor.

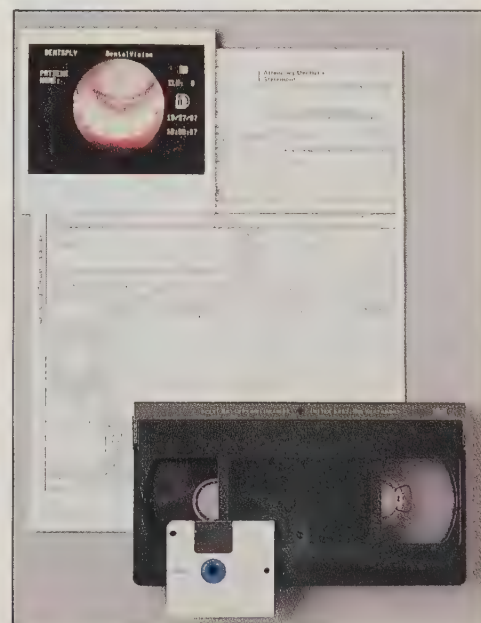
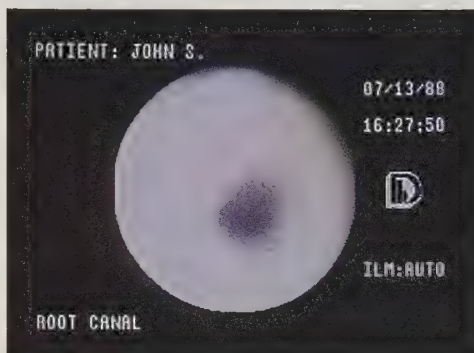
The Journal was informed by Dentsply that their DENTALVISION will market at about \$34,500 for the base unit of camera, processor, keyboard, monitor and footswitch.

The options of Polaroid (approximately \$3375), and floppy disk (\$3,000-\$6,000), may be purchased as add-ons. A VHS system may be obtained from any electronic store. The miniature endo/perio probe camera is estimated to cost \$15,000.

It is not unrealistic to imagine that as the computer finds more and more uses in the operatory, other research and development endeavors will only widen communication channels. △

Photographs: courtesy of Dentsply/Equipment Division
Dentsply International, York, PA 17405)

Prepared and written — P. Ralph Crawford, Editor JCDA



BYTES 'N BITES

The computer moves from the front desk to the operator

Gone are the days of making occlusal records with messy carbon paper, waxes, and pastes!! A computerized system developed by Dr. William Manness of Boston not only revolutionizes an age old problem but determines occlusal accuracy never achieved previously.

Dr. Manness, an Associate Clinical Professor at Tufts University School of Dental Medicine, Division of Graduate and Post Graduate Prosthodontics took over three to years to develop "T-Scan". He now heads his own company, T-Scan Inc.

Dr. Manness reported in Tufts University Health Science News, "Dentists have been working in the dark ages when it comes to occlusal analysis, and even though the goal in much of our work is to have the maximum number of teeth touch at the same time with the same amount of force, up to now no method has allowed us to adequately do the job. The computerized method of analyzing occlusion will significantly improve the quality and effectiveness of patient care."

The T-Scan system is composed of a

sensor, handle and cable, system unit, and software, *as illustrated*. The most important element of T-Scan is the disposable sensor, which is less than 60 microns thick (about the thickness of a credit card). The sensor consists of several layers of electrically conductive inks on a polyester film substrate. The top and bottom surfaces of the sensor are printed with thin conductive stripes which form an x-y grid of more than 1,500 sensing points. The spacing of the grid lines determines the degree of planar resolution. A separate sensor is used for each patient.

When the patient applies pressure onto the sensor, the computer automatically records, analyzes and displays — in color graphics — data about the force, sequence and timing of upper and lower tooth contacts. This is strong contrast to perfora-

tions in waxes and pastes which require qualitative interpretation by the operator.

As a clinical device the T-Scan appears to offer great potential in occlusal adjustment procedures — TMJ, restorative, periodontics, orthodontics; virtually all occlusal applications. Its proponents indicate a promise of new methods of analyzing the functional health of the muscles of mastication. An added advantage is that the recorded information can be printed or stored in disk files — occlusal histories of patients can become part of their permanent record.

Tekscan Incorporated of Boston reports that more than 200 of the T-Scan units are in the field, all in the United States. At the time of writing, the Journal was told that distribution rights were being arranged for the Canadian market. Cost of the basic T-Scan Diagnostic Package, which includes the Unit, sensors and printer paper, is about \$3,000 US. The cost to the dentist for a single patient sensor is \$5.00 US, and it was reported that patients were being charged from \$15.00 to \$50.00 for a T-Scan analysis. Δ

Photographs courtesy of Tekscan Incorporated, Boston.



Schematic diagram of the T-Scan system.



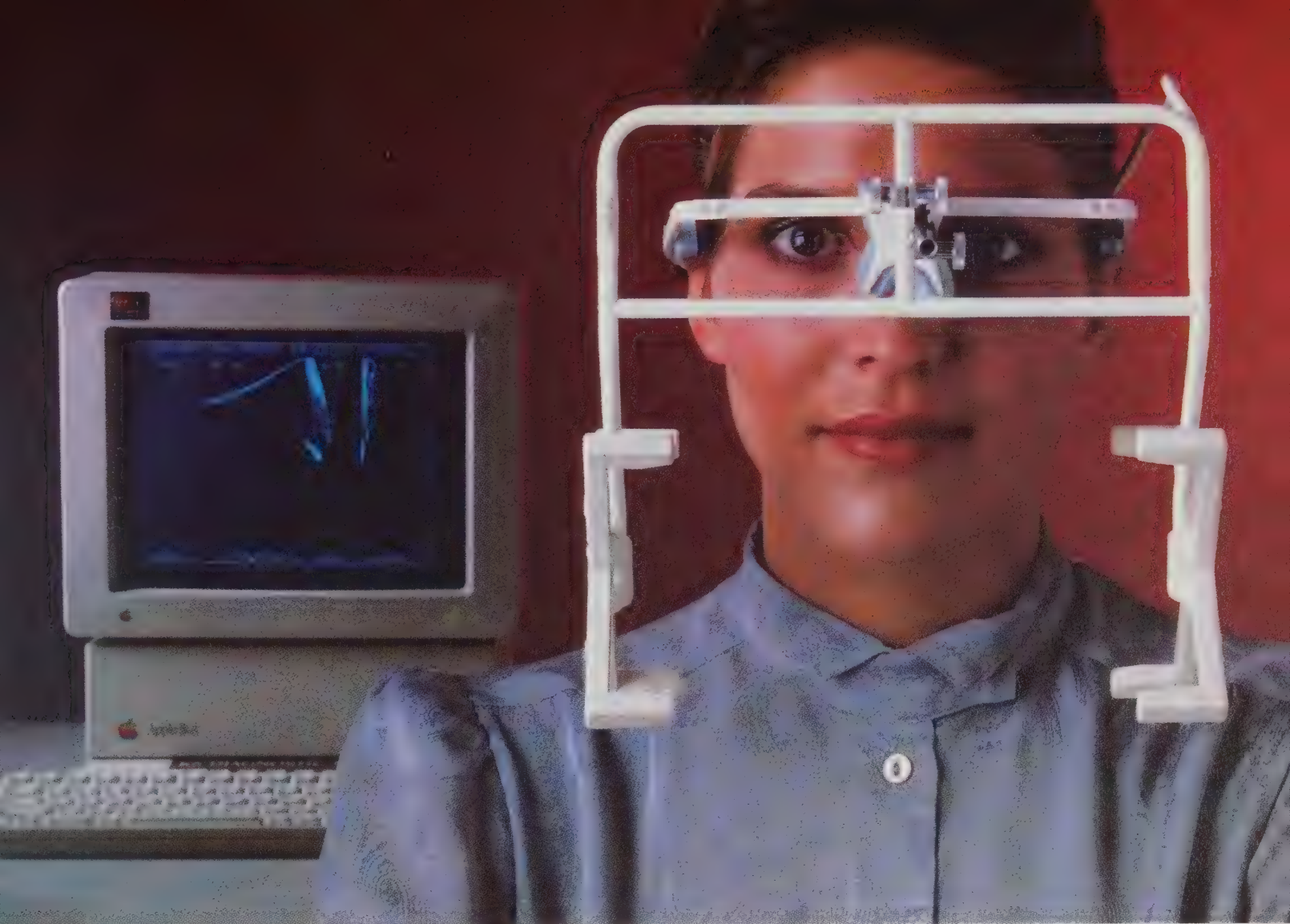
Visual display of distribution and timing of occlusal contact.



T/Scan sensor and handle.



T/Scan at chairside uses time and force to quantify occlusal contact information.



© 1987 Myo-Tronics, Inc.

Head And Shoulders Above The Rest.

The latest advancement in Neuromuscular Technology. From the company that invented it.

To be sure you're getting the most advanced neuromuscular instrumentation available, go to the company that invented the science. Myo-Tronics. Maker of state-of-the-art instrumentation for over 19 years. No one knows the technology better.

Our new K-6 Diagnostic System sets the standard others aspire to. No one can touch it for accuracy

or ease of use. It provides a three-dimensional analysis of the most minute mandibular movement. Without the programming and complex commands required by other systems.

You'll get an objective occlusal analysis on paper, immediately. Providing clear documentation for insurance and legal proceedings. And it can be used to record the patient's history and exam results, too.

But equipment isn't the only reason to choose Myo-Tronics. We

offer the largest neuromuscular dentistry education program in the world. With in-depth training at all levels. No wonder more than 5000 practitioners rely on Myo-Tronics. We wrote the book on neuromuscular diagnosis.

Raise your diagnostic procedures head and shoulders above the rest. Call Myo-Tronics at 1-800-426-0316 for more information on the K-6 or upcoming seminars.



MYO-TRONICS, INC.

Myo-Tronics, Inc., 720 Olive Way, Suite 800, Seattle, WA 98101, (206) 622-2121, Telex: 32-8410.

NEW

ANTI-PLAQUE **Viadent**[®]

Control and protection
where it counts.



ANTI-PLAQUE DIN 710105

Viadent

*Clinically Proven
Efficacy*

Oral Rinse
CONTAINING SANGUINARIA EXTRACT

Rince-bouche
CONTIENT UN EXTRAIT DE SANGUINAIRE

Helps reduce and prevent
dental plaque
Helps prevent inflamed, irritated gums

Aide à diminuer et prévenir
la plaque dentaire
Aide à prévenir l'inflammation
et l'irritation des gencives

500 mL

SEAL ON CAP FOR YOUR PROTECTION
SCÈLLE POUR VOTRE PROTECTION

Sanguinarine: A unique anti-plaque ingredient.

Sanguinarine helps to inhibit the growth of plaque microorganisms shown to be related to periodontal disease and caries, while not affecting the bacteria normally associated with healthy tissues.¹

¹ Dzink, J.L., and Socransky, S.S. Comparative in vitro activity of sanguinarine against oral microbial isolates. Antimicrobial agents and chemotherapy. 27:663-665, 1985.

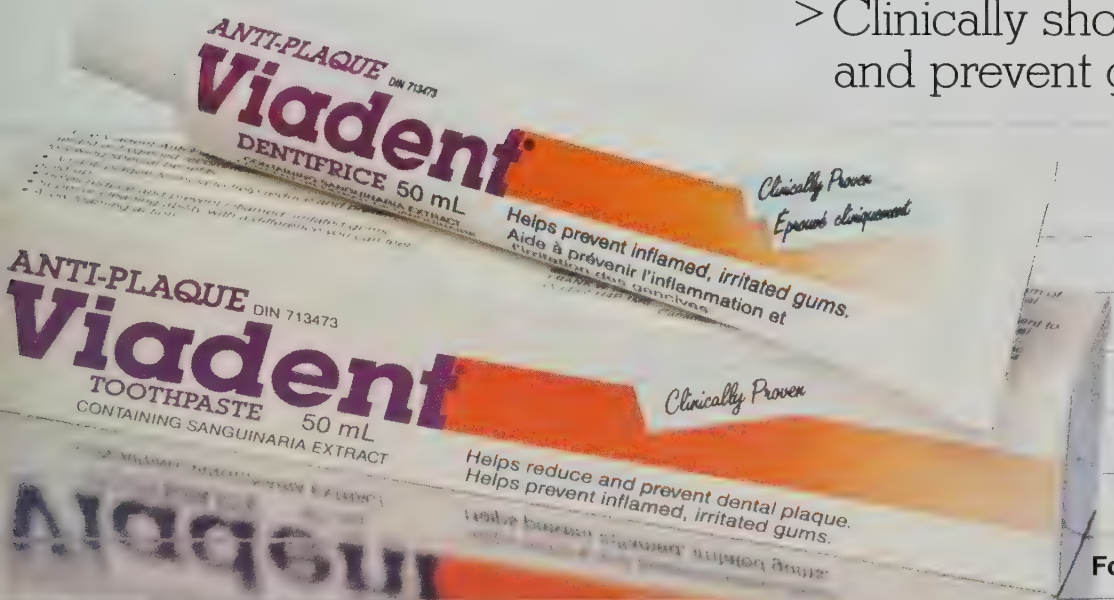
Extensive research demonstrates efficacy against plaque and gingivitis.

Sanguinarine has been tested against plaque and gingivitis in well controlled studies* conducted at major universities and research centres around the world.

In over 25 published articles and abstracts, Viadent was shown to be most effective in plaque control and prevention of gingivitis.

*Available upon request

- > Clinically shown antimicrobial activity that lasts up to 2 hours.
- > Clinically shown to inhibit plaque formation.
- > Clinically shown to reduce and prevent gingivitis.



For prescribing information, see page 696.

Recommend Anti-plaque Viadent.
Your patients will feel the difference.



Frank W. Horner Inc.
Dental Products Division.
5485 rue ferrier
montréal québec
H4P 1M6

PAAB
CCPP

Your equipment is down and the waiting room is full.

At Ash Temple, service is more than just a department, it's an attitude. One that's shared by every employee in every department at Ash Temple offices right across the country.

When you have equipment trouble, you need service fast and fast response is exactly what you can expect from us. Whether it's repair or routine maintenance, we have the ability to get it done.

We draw upon sophisticated resources to provide you with practical advice on office

design and planning, location, partnerships, association, group practice, equipment, supplies and even financing.

We know that our success depends upon being responsive to your needs.

Call us. We're there when you need us.

**Ash
Temple**
LIMITED

Canadians Serving Canadians

Head Office: 31 Scarsdale Road, Toronto, Ontario
Telephone: (416) 449-2300 Fax: (416) 449-5932



Scientific

CLINICAL DENTAL RESEARCH IN CANADA

A Clinician's Perspective

Michael I. MacEntee*, LDS(I)., Dip. Prosth, FRCD(C)
Vancouver, B.C.

There is widespread concern about the quantity and quality of clinical research performed in dental schools. Criticism has been directed at the research productivity of clinical teachers and at the institutions that tolerate this neglect. A recent review of dental research by the Medical Research Council (MRC) of Canada laments "the small proportion (of dental research in Canada) which is clinical and the small proportion of clinical teachers holding research awards."¹ Despite the concern there is, however, little agreement on the cause of the problem while on closer inspection of the evidence, it appears that even the extent of the problem is unclear.

Financial Support

All dental and medical research can be described as clinical. It can be reviewed as a wide spectrum of activities ranging from controlled observations of patients to sophisticated manipulation of human cellular biology. On the other hand it can be restricted solely to studies involving the treatment and management of patients.

No matter how it is defined it is clear that dentists conduct their investigations with very little support from the national research agencies in Canada. This is not particularly surprising since a substantial proportion of dental research of any kind is performed with money from sources other than the MRC or the National Health Research and Development Programme (NHRDP). Among the 133 awards held by the respondents to the recent MRC review, 85 (64 per cent) were obtained from other agencies. A similar finding was made through a sur-

vey conducted by mail in 1986 among members of the Association of Prosthodontists of Canada.² It identified 33 research projects in progress, of which 24 (72 per cent) were described as "in vivo" or directly clinical, and most of the others related to dental materials (Table I). While this reflects predominantly the activities of prosthodontists and probably offered a very limited view of clinical research in Canada, it did show that research is being performed by clinicians. It also showed that the work is supported principally by funds from the provincial governments and the universities, and rarely from MRC (Table II). It is inappropriate to judge the quantity or quality of this research by the amount or source of grant support it attracts. Most of the staff, equipment and supplies required for clinical studies can be found in the university dental clinics and dental materials are available from the manufacturers, frequently at no cost, so it is possible to conduct clinical investigations at a fraction of the direct financial outlay needed to establish and run a research laboratory.

*Dr. MacEntee is Professor, in the Department of Clinical Dental Sciences, University of British Columbia, Vancouver, B.C.

Time available

Dental faculties in principle allocate two days per week for research or scholarly activity but rarely, if ever, is this allocation enforced or equitably distributed.¹ Clinicians claim to be unhappy with the arrangement that compels them to conduct their research during the summer

months when teaching loads are reduced. They pine for the extra opportunities and the 18 hours per week available on average to the non-clinical faculty.¹

Barriers

Several factors have been associated with the apparent absence of good dental clinical scientists (Table III). Medical education is subject to similar deterrents, yet the importance of clinical research in medicine has been recognized on this continent since 1907 with the formation of the American Society for Clinical Investigation. This and other professional organizations were formed specifically to sponsor interest and acceptable standards in clinical research. Their activities have produced highly respected journals offering links between the basic and clinical sciences. Furthermore, a high standard of literary scholarship by the clinical scientist reduces the risk of "being viewed as a weaker scientist by the more basic investigator and as a weaker clinician by the practitioner".³ The Journal of Clinical Investigation, for example, was ranked among the leaders in the Science Citation Index® from 1955 to 1985.⁴ Hence, role models for the aspiring clinical researcher in medicine are easily identified. Only rarely have dental journals offered the same inspiration.

Laboratory research with its controlled environment attracts dental students and young faculty members away from research in the clinic. It has been suggested that the other health sciences have solved this problem by providing good training and research opportunities. This theme is developed further by recognizing the PhD

as the training of choice for the clinical specialist who plans a "serious scientific career".¹ Unfortunately, the clinical specialist with a PhD is trained usually in research methods applicable principally to the laboratory.⁵ Consequently, the serious scientific career is apt to continue in the laboratory, with only a vague appreciation and considerable distrust of the methods used to conduct clinical research. Laboratory training, even to a PhD level, rarely develops clinical investigative skills. Moreover, the time required to complete a major clinical investigation frequently exceeds the

2-3 years allotted to a PhD thesis in most other disciplines. It is noteworthy that much of the clinical research in medicine is performed at a very high standard by medical specialists with no formal education, beyond their residencies and specialty training.³⁻⁶

Past experience suggests that there are limited opportunities for creating a clinical scientist in a dental faculty. It is not clear whether the limits are due to the long hours of clinical teaching undertaken by the clinicians, a lack of initiative, or the general environment within the schools. There is no doubt that teach-

ing occupies a large part of a clinician's time in a dental school. After scheduled treatment sessions there are numerous unscheduled and time consuming consultations between the teacher and student. Nevertheless, attempts made to report on the immense amount of treatment performed in dental school clinics have been few.

There is no reason why dentists, even with very little research training, could not report objectively on the results of the treatment they provide or supervise. Unfortunately, the administrative structure of most Canadian and American dental schools segregates the non-clinical faculty members into groups with strong links to the basic sciences, with the result that most of the research and graduate training has no direct contact with clinical matters. This structure does little to encourage or provoke clinical study and probably inhibits collaborative research.

Future Growth

The future of clinical research in dentistry rests with the students and young faculty members in the profession. Research awareness and training must begin early in the dental curriculum to pervade the full four or five years of undergraduate clinical training. This idea will be realized only when the dental clinic is managed, at least in part, like a research laboratory. Dental students will not see the immediate relevance of research to clinical practice until they are exposed to it as an obvious part of their clinical training with the participation and vision of both the clinical and non-clinical faculty.

The Federal Government, in recent years, has identified a need for more clinical investigators.⁷ Unfortunately, this need is not addressed during the training of clinical specialists in dentistry. After several years of training, the new specialists cannot be expected to enroll for a further two or three years of low income to obtain a PhD in a basic science. The financial incentives are simply not available and clinical practice is still too attractive. Consequently the need remains for clinical specialists familiar with the basic techniques of biological or social research. Training on the job to obtain a PhD or its equivalent is a long established practice in Europe. Junior clinicians on faculty, given adequate time and encouragement, can be educated in research methods by a mentor and, at the same time, fulfill their other University responsibilities.^{3,5,8} It will however, require the combined forces of dental, medical and other health science deans in North America to introduce a similar

TABLE I

Research activities reported by members of the Association of Prosthodontists of Canada in 1986.

Description	University						Total
	*A	B	C	D	E	F	
Dental Materials	1	4	4	1	1	1	12
Clinical Surveys		2	2	4		5	13
Oral Implants				2			2
Physiology			3	2		1	6
TOTAL	1	6	9	9	1	7	33

* A = Dalhousie; B = Laval; C = Manitoba; D = Montreal; E = Saskatchewan; F = University of B.C.

TABLE II

Sources of financial support obtained for research by members of the Association of Prosthodontists of Canada in 1986.

Type of Research	Support				
	MRC	Provin Govt.	Univer*	Other	None
Dental Materials	3	1	3	1	4
Clinical Surveys		4	5	2	2
Oral Implants			1	1	
Physiology	1		3	1	1
TOTAL	4	5	12	5	7

*includes MRC Dean's Fund

TABLE III

Factors reputed to influence the number of clinical scientists in dentistry*.

1. Dentistry attracts students who rely on technical skills and want independence.
2. There are few role models for the clinician-scientist.
3. Research experience is not part of a student's clinical instruction.
4. Private dental practice, particularly for specialists has more attraction than academia.
5. Support for research training is scarce.
6. Research activity of clinicians is inhibited by teaching and administrative loads.

*source MRC report on the clinician-scientist 1981.¹

incentive on this continent.

Collaboration offers an opportunity for scientists with similar interests to pool their resources. In addition it could help the inexperienced researcher to obtain guidance from senior clinical investigators, not necessarily in the same institution.⁶ A national register of current dental research activities, circulated to all dental and medical faculties would help to identify the potential for collaboration. At present, most clinical dental research is occurring in isolation to the detriment of everyone.

Dental clinics provide an excellent opportunity for a relatively controlled research environment. Computers are available already in most clinics for storing and analyzing a wide range of information, but before they can be used optimally, a major effort is required to standardize the clinical criteria used to assess oral health. This task in itself should interest clinicians and produce a wealth of clinical research ideas.

According to Tedesco et al, the greatest impediment to clinical research is "the attitude that basic research is the stand-

ard of excellence and that everything else is, at best solid grade C work".⁹ Notwithstanding this attitude, the vast majority of advances in medicine over the past 75 years were made by young clinical investigators.³ This may be the case also in dentistry, although the role of the dental clinical scientist has not been so obvious. Dentists on a dental faculty must be occupied with research, patient care, and teaching. The three roles are mutually dependent and the clinical scientist excels by building one occupation upon the other.

Recommendations

- research needs must be identified clearly in clinical teaching.
- dental clinics must be organized to analyze treatment effects.
- universities should acknowledge the unique academic position of the clinician, and young faculty members should be encouraged to obtain clinical research training to a PhD level while fulfilling their other duties.
- a national register of current dental research should be established. △

References

1. Medical Research Council of Canada. *A review of dental research in Canada*. Report of the working group to the Medical Research Council, Health and Welfare Canada, and to the Faculties of Dentistry in Canada, Ottawa, 1986.
2. MacEntee, M.I. Paper presented to the meeting of the Association of Prosthodontists of Canada, Vancouver, 1986.
3. Kelly, W.N. Clinical investigation and clinical investigator: the past, present and future. *J. Clin Invest* 74:1117-22, 1984.
4. Garfield, E. Fifty classics from the Journal of Clinical Investigations: over 60 years of Nobel-class research. *Current Contents* 30(8):309, 1987.
5. Ten Cate, A.R. The role of clinical research in the future of dentistry. *J Can Dent Assoc* 51:823-25, 1985.
6. Neidle, E.A. The mentor apprentice program — a modest proposal for alleviating the scarcity of clinical researchers in dentistry. *J Dent Educat* 49:272-74, 1985.
7. Medical Research Council of Canada. Report of the President, Ottawa, 1982/3.
8. Mandel, I. Dental research in perspective. *J Amer Dent Assoc* 111:736-40, 1985.
9. Tedesco, L.A., Albino, J.L., Feagans, W.M., Mackenzie, R.S. Another look at behavioural sciences in dentistry: perspectives on collaborative clinical research. *J Dent Educat* 48:448-52, 1984.

CDSP! MAKE US WORK FOR YOU!

EXPERTISE • SERVICE

COMMITMENT

ACCESSIBLE • DEPENDABLE

CANADIAN DENTISTS' INSURANCE PROGRAM

CDA RETIREMENT SAVINGS PLAN

DENTAL OFFICE MANAGEMENT SYSTEM

RETIREMENT COUNSELLING

TOLL-FREE TELEPHONE SERVICE

INSURANCE REVIEW SERVICE



CDSP!

WORKING FOR YOU!

Call Toll-free for more information
Western Canada, Atlantic Canada
and Ontario Area Code 807
1-800-268-5418
Quebec and Ontario
Except Area Code 807
1-800-268-3411
Metro Toronto
497-7117

CORRECTION

UNIVERSITY OF TORONTO FACULTY OF DENTISTRY

Department of Paediatric Dentistry

Applications are being accepted for a full-time tenure-track position in the Department of Paediatric Dentistry at either the Assistant or Associate Professor level. Candidates must have completed a postgraduate program in Paediatric Dentistry and preferably will have a graduate degree.

Responsibilities include teaching at the undergraduate and postgraduate levels as well as participating in active research. For an individual committed to an academic career, the position offers exciting opportunities in both academic and outreach programs.

Available January 1, 1989, or as soon as possible thereafter. Salary and academic rank are commensurate with qualifications and experience.

The University of Toronto offers an equal opportunity for employment to qualified male and female candidates. Interested persons are requested to forward a current curriculum vitae which includes the names and addresses of three references to: Dr. N. Levine, Head, Department of Paediatric Dentistry, Faculty of Dentistry, 124 Edward Street, Toronto, Ontario M5G 1G6. Deadline for application is October 30, 1988. Canadian immigration regulations require this advertisement to be directed to Canadian citizens and/or permanent residents.

INDEPENDENT CLINICAL REPORT CITES CORE-VENT ADVANTAGES



"Complete System"
"Moderate Cost"
"Clinical Success"

Clinical Research Associates of Provo, Utah, reported on the Core-Vent System of Osseointegrated Implants in its March, 1988, newsletter. The section entitled "Advantages" is quoted verbatim below:

- A. Complete system.** Other products available address specific aspects of implant procedures, but none offer broad range of Core-Vent System.
- B. Moderate cost.** Considerably less than Branemark, and less than most other systems also.
- C. Company responds rapidly to dental clinical needs.** New designs and changes in old designs have been developed as practitioners expressed need.
- D. Surgical procedures are made simple.** Many sizes and types of implants offer range of alternatives and accommodate most clinical needs. Clinical success of system throughout profession demonstrates concept is relatively easy to understand and use.
- E. Adapts well to both fixed and removable prosthodontic needs.** Bendable and castable abutments allow angulation of coronal positions and choice of 12 threaded and 10 cemented abutment options for Core-Vent, Screw-Vent and Micro-Vent. Numerous designs allow versatility necessary to adapt implant to individual patient needs.
- F. Broad education resources offered, but not requisite for purchase.** Include videos for clinician and patient, hands-on and lecture courses, annual symposium and manuals.
- G. Primate studies show Core-Vent comparable to well established Branemark System.** (J Dent Res vol 67, March '88.-[1] Boyne, et al, Abs. #557, p. 182; and [2] Beirne, et al, Abs #558, p. 182.)

Core-Vent Implant Training Programs

OTTAWA—September 9 & 10 WINNIPEG—October 15 & 16
MONTREAL—October 6-8

TORONTO TEACHING CENTER—September 23 & 24
Two-day Surgical/Prosthetic Course

- Full Tuition Rebate
- Two Hands-on Sessions
- Second Day Prosthetic Option

Tuition

Two-day Surgical/Prosthetic Course	\$600 U.S.
Prosthetic Course Only (second day)	\$200 U.S.

FOR REGISTRATION INFORMATION
CALL THE CORE-VENT EDUCATION DEPARTMENT
1-800-551-3838



CORE-VENT®

C O R P O R A T I O N

15821 Ventura Boulevard, Suite 420, Encino, California 91436
(818) 783-1517 • FAX (818) 789-3928 • U.S. 800-551-3838
No. CA 800-451-4900 • So. CA 800-346-5222 • In Canada 800-263-1644

A single dose study of a new analgesic, **CIRAMADOL**

J.M. Symington, BDS, MSc, PhD, FDSRCS (Eng.)

R.D. Listrom, DMD, MSc
Toronto

INTRODUCTION

Pain relieving drugs in general use are classified as narcotic or non-narcotic analgesics. Non-narcotic analgesics are all inhibitors of prostaglandin synthesis and have both central and peripheral actions.

SOMMAIRE

Les drogues qu'on utilise couramment pour réduire la douleur sont classées comme des analgésiques narcotiques ou non narcotiques. Ces derniers inhibent tous la synthèse de la prostaglandine et entraînent des réactions centrales et périphériques.

Narcotic analgesics exert their action on at least three receptor sites in the central nervous system: through μ receptors which are associated with analgesia and euphoria, kappa receptors associated with sedation and meiosis, and sigma receptors identified with psychotomimetic effects. Narcotic analgesics are extremely effective in the relief of pain but have several disadvantages: they induce drug dependence, respiratory depression, constipation, and may stimulate vomiting.¹ It has been found that small changes to the molecule of an opiate can change the mode of action of a drug. Thus, three groups have now been defined: agonist (e.g. morphine), antagonist (e.g. naloxone) and agonist/antagonist which exhibits some of the properties of both groups.

The agonist/antagonist drugs have been the subject of considerable investigation, since it is thought that some of the adverse effects of agonist drugs may be avoided while retaining the analgesic potency. Ciramadol, 1-cis-2 (-dimethyl-amino-m-hydroxybenzyl) cyclohexanol is one such drug.

Minor oral surgical procedures, in particular the removal of impacted third molar teeth,²⁻⁵ provide a very suitable model for clinical studies of the efficacy of mild analgesics. Patients requiring this procedure are normally young, healthy adults, and the surgery is definable within fairly narrow limits. Pain relief, pain intensity difference and sum of pain intensity difference have all been used to measure analgesic potency, with the latter proving the most sensitive test.³

Study Design and Data Collection

This was a double blind study of the safety and efficacy of single doses of Ciramadol 30 mg, Ciramadol 60 mg, and Codeine 60 mg administered postoperatively for the control of pain following oral surgery procedures. The trial was conducted on an out-patient basis. One hundred and forty-eight patients entered the study. They were of either sex, of any race, between the ages of 18 and 65 years, and in good health.

Exclusion criteria were:

- 1) Pregnant or breastfeeding women and those of childbearing age not following an acceptable birth control regime.

- 2) Patients with known hypersensitivity to narcotics.
- 3) Patients who had taken analgesics within four hours of their entry into the study.
- 4) Patients with a history of chronic analgesic or tranquilizer use or drug dependence.
- 5) Patients taking concomitant interfering or potentially interacting medications.
- 6) Patients with significant medical disorders.

Data were collected by means of a patient diary and record form. The record form, completed by the investigator, provided demographic and screening information, an adverse experience record and a termination summary. This included age, sex, weight, height, race, type of surgery, anesthesia used and other medications.

The adverse experience record indicated adverse reactions during the first 12 hours after dosing and included an opinion from the investigator whether or not this appeared to be drug related. Patients were randomly assigned to one of the three study groups. A placebo group was not used for ethical reasons. Each patient was given one tablet of study medication to be taken when they experienced moderate pain, and a six hour diary card to be completed at home. Three pain scales were employed to record the patient's subjective evaluation.

1) Categorical Pain Intensity Scale

- Assigned Scores
- | | |
|---|-----------------|
| 0 | — no pain |
| 1 | — mild pain |
| 2 | — moderate pain |
| 3 | — severe pain |

2) Pain Analogue Scale

A 100 mm line with ends representing "no pain" and "worst ever". The patient placed a stroke through the line indicating pain intensity.

3) Verbal Pain Relief Scale

Assigned Scores — 1 — worse

0 — no relief

1 — a little relief

2 — moderate relief

3 — a lot of relief

4 — complete relief

Evaluation of pain intensity was recorded at the time of study drug dosing and at 30 minutes, one hour, and then hourly, up to six hours. If the patient did not receive adequate relief from the study medication after one hour, a standard analgesic preparation was provided as additional medication.

A subjective statement was recorded by the patient, rating the effect of the study drug as excellent, good, fair or poor.

Statistical Methods

Significance in this study is assumed when $p = 0.05$.

1) Patient Totals

Partitioning of the Chi-Square for proportions was used to detect study group differences.

2) Demographics

Homogeneity of the groups was tested using analysis of variance. Sex was analyzed using partitioning of the Chi-Square test to detect drug group differences.

3) Remedication

The cumulative proportion of patients remedicated was analyzed using partitioning of the Chi-Square for proportions at each time point for drug therapy differences.

4) Analgesic Response

a. Visual Analogue Scale

A Repeated Measures Analysis of Variance was performed to detect drug, time and/or drug $\times$ time effect. The Student-Newman-Keuls Multiple Comparison test was performed to detect study drug differences. Effective pain relief was analyzed using partitioning of the Chi-Square test for study drug group differences.

b. Categorical Pain Intensity

Ridit Analysis, Analysis of Variance, and the Student-Newman-Keuls Multiple Comparison Test were used.

c. Categorical Verbal Pain Relief

Ridit analysis was performed at each time point to detect drug differences.

5) Adverse Reactions

Partitioning of the Chi-Square Test was used to analyze the incidence of the most frequent adverse reactions. The incidence of nausea and vomiting was analyzed, employing Fisher's exact test.

6) Termination Summary

The overall patient evaluation of drug therapy was analyzed using Ridit analysis. The overall clinical evaluation was subjected to partitioning of the Chi-Square.

Results

Of the 148 patients enrolled in the study, there were 31 dropouts, leaving a total of 117 patients. Thirty-four patients received Codeine 60 mg; 44 received Ciramadol 30 mg and 39 Ciramadol 60 mg (Table I). There were no significant differences between the groups in pain experienced at the time of taking the study medication ($p < 0.8$).

Dropouts

Thirty-one patients did not complete the full six-hour study period. Eight failed to comply with the protocol and records were lost for a further eight patients. The remainder were excluded because of the administration of medication outside the protocol, remedication or vomiting less than one hour after taking the study medication, sleeping during the study period, or loss to follow-up.

The Surgery

One hundred and four patients had third molar teeth removed. Thirteen had other forms of oral surgical procedures including alveoplasty, gingivoplasty, cyst removal, and multiple extractions. All but seven patients had surgery performed in the morning. All but 11 patients were medicated in the afternoon. Remedication after the study dose was with Tylenol 3[®] and some patients were also provided with antibiotics. Patients who received

TABLE I

Summary of demographic data

Study Drug	Sample Size	M	F	Mean (Range)		
				Age (yr)	Height (in)	Weight (lb)
Codeine 60	34	16	18	24.7 (18-46)	67.8 (61-75)	142.8 (98-190)
Ciramadol 30	44	18	26	26.8 (18-52)	66.7 (59-83)	142.6 (90-220)
Ciramadol 60	39	16	23	26.5 (18-46)	67.0 (61-75)	135.7 (102-175)
TOTAL	117	50	67	26.1 (18-52)	67.1 (59-83)	140.4 (90-220)

TABLE II

Pain intensity difference as measured by the 100 mm visual analogue scale

Time Post-Dosing (hrs)	Mean difference from starting pain* (mm) (S.E.)		
	Codeine 60 N = 34	Ciramadol 30 N = 44	Ciramadol 60** N = 39
0.5	7.15 (4.48)	5.68 (2.66)	7.08 (3.95)
1	12.09 (5.61)	13.09 (2.59)	22.87 (4.35)
2	7.47 (5.96)	14.48 (3.44)	25.51* (4.60)
3	4.32 (5.72)	12.32 (4.07)	25.54** (4.58)
4	1.12 (5.29)	11.61 (4.21)	21.49* (5.00)
5	-0.50 (5.24)	11.30 (4.41)	20.87* (5.24)
6	-1.88 (5.25)	9.61 (4.26)	20.31** (5.24)

* A positive difference from starting pain indicates an improvement in pain severity. The mean starting pain intensity scores for Codeine 60 mg, Ciramadol 30 mg and Ciramadol 60 mg were 45.41, 47.66 and 55.18 mm, respectively; no significant difference was detected among the mean scores pre-trial.

** Ciramadol 60 mg provided significantly greater pain relief than Codeine 60 mg:
* $p < 0.05$, ** $p < 0.01$, using Student-Newman-Keuls multiple comparison test with a repeated measures ANOVA. No other significant drug differences were detected.

general anesthetic did not have narcotics administered. The remaining patients were sedated with Valium only or received no sedation.

Pain Control

Remedication

By one hour, 14.77 per cent of the patients taking codeine 60 mg required remedication with Tylenol 3®, whereas only 4.5 per cent and 7.7 per cent of the patients taking Ciramadol 30 mg or Ciramadol 60 mg, respectively, had been remedicated. At three hours there were significantly ($p < 0.05$) more patients remedicated in the Codeine 60 mg treatment group (50.0 per cent) than in either the Ciramadol 30 mg (29.5 per cent) or the Ciramadol 60 mg group (30.8 per cent).

Effective Pain Relief

Significantly ($p < 0.05$) more patients in the Ciramadol 60 mg group attained effective (i.e. at least 50 per cent) pain relief than in the other two treatment groups, as measured by the 100 mm visual analogue scale. The mean values for effective pain relief obtained for Ciramadol 60 mg, Ciramadol 30 mg and Codeine 60 mg were 76.9 per cent, 52.3 per cent, and 50 per cent of patients, respectively (Table II).

Categorical Verbal Pain Relief (6-point scale)

Both Ciramadol 30 mg and Ciramadol 60 mg provided significantly ($p < 0.05$) more pain relief than Codeine 60 mg from one hour onwards as detected with Redit Analysis. Ciramadol 60 mg consistently produced the highest relief scores (1.92, 2.05, 2.24, 1.82, 1.79 and 1.68 at one to six hours, respectively), whereas Codeine 60 mg produced the lowest relief scores (1.21, 1.30, 1.18, 0.97, 0.88 and 0.88 at one to six hours, respectively). A difference ($p < 0.05$) was also detected between Ciramadol 30 mg and Ciramadol 60 mg at three hours, with the latter providing more pain relief.

Sum of Pain Intensity Difference

The cumulative pain intensity difference scores (SPID) were highest for Ciramadol 60 mg and lowest for Codeine 60 mg from one hour onward (Fig. 1). Ciramadol 60 mg patients had significantly ($p < 0.05$) higher SPID scores than Codeine 60 mg from four hours onwards, indicating a reduction in pain severity. No difference was detected between

Ciramadol 30 mg and Codeine 60 mg or Ciramadol 30 mg and Ciramadol 60 mg.

Adverse Reactions (Table III)

The most frequently occurring adverse reaction was drowsiness. Significantly more patients taking Ciramadol 60 mg experienced drowsiness than in the group taking Codeine 60 mg ($p < 0.05$). No statistically significant differences were noted for Ciramadol 30 mg.

Nausea and vomiting were reported by 30.8 per cent of patients taking Ciramadol 60 mg, 22 per cent of patients taking Ciramadol 30 mg, and 5.1 per cent of the group taking Codeine 60 mg. The difference between the groups taking Ciramadol 60 mg and Codeine 60 mg was

statistically significant ($p < 0.05$). No correlation was demonstrated between vomiting and any of the medication groups. Where general anesthesia was used (24 patients, none of whom received a narcotic), there was a diminished incidence of nausea and vomiting for all the medication used compared to those patients who did not receive general anesthesia. No correlations could be established for other adverse effects noted.

Patient Evaluation

Ciramadol 60 mg was evaluated more positively than Codeine 60 mg by patients ($p < 0.05$) (Fig. 2). In clinical evaluation, both Ciramadol 60 mg and

TABLE III

Incidence of most frequent adverse reactions by study group for the 117 patients with efficacy data

Adverse Reaction	Incidence %			Significant Contrast	
	Codeine 60 N = 34	Ciramadol 30 N = 44	Ciramadol 60 N = 39	Contrast	P-Value
Drowsiness	5 (14.7)	17 (38.6)	9 (23.1)	Cod*60 vs Cir** 30	0.018
Nausea	2 (5.9)	9 (20.5)	12 (30.8)	Cod 60 vs Cir 60	0.008
Vomiting	3 (8.8)	10 (22.7)	9 (23.1)		
Dizziness	2 (5.9)	7 (15.9)	8 (20.5)		
Lightheadedness	2 (5.9)	6 (13.6)	5 (12.8)		
Upset stomach	1 (2.9)	1 (2.3)	2 (5.1)		
Weakness	0 (0.0)	0 (0.0)	3 (7.7)	Cod 60 vs Cir 60 Cir 30 vs Cir 60	0.039 0.028

* Cod = Codeine
** Cir = Ciramadol

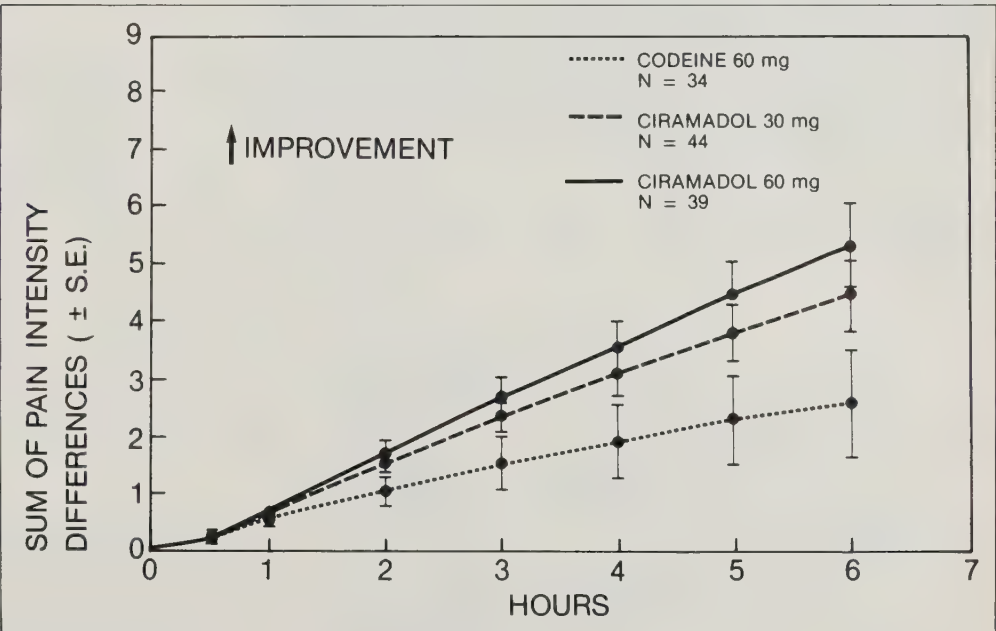


Fig. 1. Mean values for the cumulative sum of the pain intensity difference scores (SPID) using the 4-point pain intensity scale, during the six hours following treatment. Significant ($p < 0.05$) difference was detected between Codeine 60 mg and Ciramadol 60 mg from four hours onward, using the Student-Neumann-Keuls multiple comparison test.

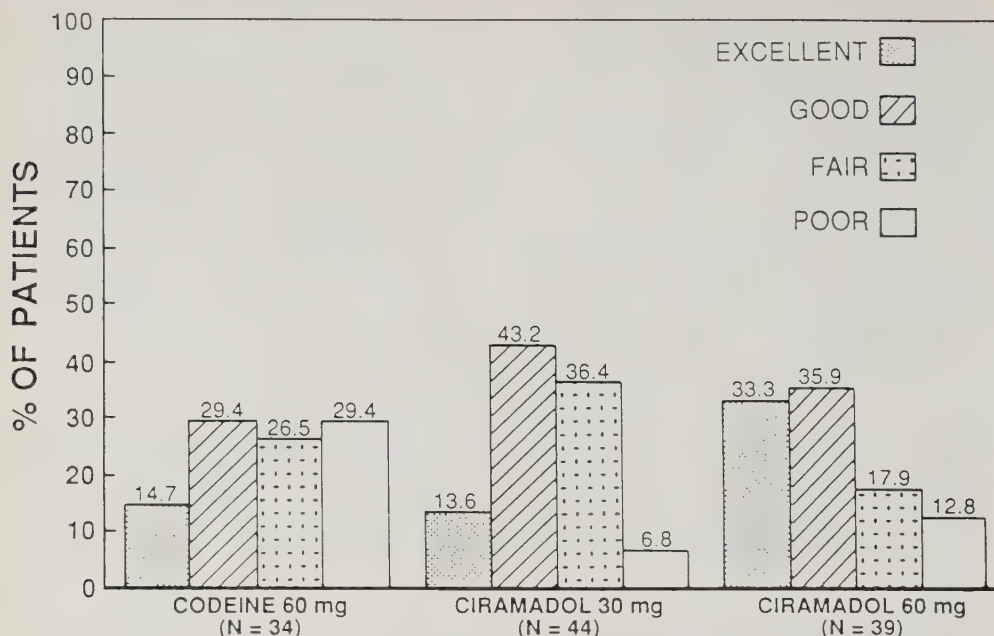


Fig. 2. Percentage of patients evaluating the quality of pain relief on their respective treatments. Significantly ($p < 0.01$) greater pain relief with Ciramadol 60 mg than Codeine 60 mg was detected with Redit analysis.

Ciramadol 30 mg were evaluated as better than Codeine 60 mg ($p < 0.01$).

Discussion

All the efficacy parameters showed that Ciramadol 60 mg was more effective than Codeine 60 mg in relieving pain. Ciramadol 30 mg also provided more pain relief than Codeine 60 mg when measured by the categorical pain intensity and pain relief scales and the remedication rate. These drug group differences were detected as early as one hour after dosing.

The most frequently occurring adverse reactions were drowsiness, nausea and vomiting, dizziness and lightheadedness. Ciramadol 30 mg patients reported more drowsiness, and Ciramadol 60 mg patients more nausea than the other medication groups. It seems likely that the drowsiness, dizziness and lightheadedness were due to narcotic agonist actions of the drugs, and the nausea was similarly due to narcotic stimulation of the vomiting centre.

The advantages of narcotic agonist/antagonists lie in obtaining pain relief while suppressing undesirable side effects. While dependence has not been shown in animal studies with Ciramadol, the occurrence of significant incidences of nausea and vomiting detract to some degree from the usefulness of this new analgesic. If, as has been reported,⁶⁻⁸ there is a reduced incidence of adverse effects in patients who are ambulatory, then Ciramadol may contribute a significant benefit to hospital in-patients. In

non-ambulatory patients, Ciramadol at doses at 60 mg and 30 mg should be treated with caution. Δ

Dr. Symington is Professor and Head of the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6.

Dr. Listrom is an oral and maxillofacial surgeon engaged in private practice in Mississauga.

Reprint requests to Dr. Symington.

References

1. The Pharmacological Basis of Therapeutics. Gilman, A.G., Goodman, L.S. and Gilman, A. (eds.) Macmillan Publishing Company, 1980, 522.
2. Cooper, S.A. and Beaver, W.T. A model to evaluate mild analgesics in oral surgery outpatients. *Clin Pharmacol Ther* 20:241-250, 1976.
3. Cooper, S.A., Needle, S.E. and Kruger, G.D. Comparative analgesic potency of aspirin and ibuprofen. *Oral Surg* 35:898-903, 1977.
4. Dionne, R.A. and Cooper, S.T. Evaluation of preoperative ibuprofen for postoperative pain after removal of third molars. *Oral Surg* 45:851-856, 1978.
5. Cooper, S.A., Breen, J.F. and Giuliani, R.L. Replicate studies comparing the relative efficacies of aspirin and Indoprofen in oral surgery outpatients. *Clin Pharmacol* 23:151-159, 1979.
6. Staquet, M.J. Analgesic effect of Ciramadol in patients with chronic pain. *Curr Med Res Opinion* 6:475-477, 1980.
7. Camu, F. Double-blind comparison of the analgesic response to oral Ciramadol (WY-15.705) and Pentazocine in postoperative pain. *European J Clin Pharmacol* 19:259-262, 1981.
8. Fragen, F.J. and Caldwell, N.J. Comparison of three doses of oral Ciramadol and placebo for the treatment of moderate to severe postoperative pain. *European J Clin Pharmacol* 22:459-465, 1982.

Ultracaine® D-S (articaine HCl) D-S forte

Action

Ultracaine (articaine HCl) has been shown to block conduction by interfering with the process fundamental to the generation of the nerve action potential, namely the large transient increase in the permeability of the membrane to sodium ions that is produced by a slight depolarization of the membrane.

Indications

Ultracaine is indicated for infiltration anesthesia and nerve block anesthesia in clinical dentistry.

Contraindications

Ultracaine is contraindicated in patients with a known hypersensitivity to local anesthetics of the amide group; in the presence of sepsis near the proposed injection site; in patients with severe shock; in patients with any degree of heart block; in patients with existing neurologic disease and in patients with severe hypertension.

When Ultracaine with epinephrine is used, the caution required of any vasopressor drug is in order.

Warnings

Methemoglobinemia

As with other local anesthetics, Ultracaine is capable of producing methemoglobinemia: this has been observed when an intravenous regional anesthesia technique was used. Ultracaine, when used as directed in dental procedures, was not associated with methemoglobinemia.

Usage in Pregnancy

Animal studies have not demonstrated teratogenic or embryotoxic effects of Ultracaine. However, safe use in pregnant women has not been established. Ultracaine is unlikely to be transferred to the mother's milk since it is rapidly decomposed and eliminated.

Precautions

Resuscitative equipment and drugs should be readily available when any local anesthetic is used. The safety and effectiveness of local anesthetics depend upon proper dosage, correct technique, adequate precautions and readiness for emergencies. Ultracaine should be used cautiously in persons with known drug allergies or sensitivities, or suspected sensitivity to the amide-type local anesthetics.

Patients with Special Diseases and Conditions

The p-hydroxybenzoic acid methyl ester contained in Ultracaine, as a preservative, has a hydroxy group in the para-position. This fact should be borne in mind in the case of patients with para-group allergy.

Adverse Reactions

Reactions to Ultracaine are characteristic of those associated with amide-type local anesthetics.

A major cause of adverse reactions to this group of drugs is excessive plasma levels, which may be due to overdosage, inadvertent intravascular injection, or slow metabolic degradation. Other causes of reactions to these local anesthetics may be hypersensitivity, idiosyncrasy, or diminished tolerance.

Dosage and Administration

As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized, the vascularity of the tissues, the number of neuronal segments to be blocked, individual tolerance and the technique of anesthesia. The lowest dosage, needed to provide effective anesthesia should be administered.

	Infil- tration	Nerve Block	Oral Surgery
Ultracaine DS forte	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL
Ultracaine DS	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL

It is recommended not to exceed 7 mg/kg body weight in adults.

To date, Ultracaine has not been administered to children under 4 years of age, nor in doses greater than 5 mg/kg in children between the ages of 4 and 12.

Supply

Ultracaine D-S: 4% with epinephrine (1/200,000) and Ultracaine D-S forte: 4% with epinephrine (1/100,000) are available in 1.7 mL cartridges, box of 50 cartridges.

Product Monograph available on request.

References:

1. Dudkiewicz A, Schwartz S, Laliberté R: Effectiveness of Mandibular Infiltration in Children Using the Local Anesthetic Ultracaine®. *Canadian Dental Association Journal* 1987; Vol 53 (No. 1): 29-31.
2. Lemay H et al: Ultracaine in conventional operative dentistry. *Journal of the Canadian Dental Association* 1984; 50 (No. 9): 703-708.

Hoechst and ®, Reg. Trademarks of Hoechst AG, Germany (West)

Hoechst

Neuromuscular Occlusion Seminars

Objective, electronic diagnosis
& documentation

The only complete continuing education program in:

- State of the art TMJ/MSD electronic diagnosis
- Role of the muscles in **all** major dental procedures
- Methods of objective diagnosis & case documentation
- Individualized, precision orthotic (splint) design
- Physiologic function of masticatory muscles

Introductory Seminars

Seattle, WA	Sept. 23-24	Columbus, OH	Dec. 9-10
San Antonio, TX	Oct. 21-22	Atlanta, GA	Jan. 20-21
Seattle, WA	Oct. 28-29	Los Angeles, CA	Feb. 10-11
Atlanta, GA	Nov. 4-5	Houston, TX	Feb. 17-18
Chicago, IL	Nov. 18-19	Pittsburgh, PA	Mar. 10-11
Seattle, WA	Dec. 2-3	Orlando, FL	Mar. 17-18

Call for schedule of advanced & specialty courses

AGD, CDA accreditation and course certificates for all programs.

For details, call **1-800-426-0316**.



MYO-TRONICS, INC.

720 Olive Way, Suite 800, Seattle, WA 98101
(WA, AK & Canada call 206-622-2121)

THE UNIVERSITY OF SYDNEY AUSTRALIA

Lecturer/Senior Lecturer (2 positions) Reference No. 26/14 Department of Prosthetic Dentistry

Applicants must have a dental qualification registerable in NSW and a higher degree in the discipline. The appointee will be involved in both the undergraduate and graduate teaching programmes and should have previous teaching experience and will also be expected to conduct research in the discipline.

Current research work in the Department involves the following areas: Materials science; pathophysiology of occlusion and the temporomandibular joint; diagnosis and management of oro-facial pain; improved clinical techniques for denture retention utilising magnets, and the use of implants in clinical reconstruction.

Intending applicants should obtain a detailed statement of information concerning the teaching programmes of the Department from the Registrar, address below.

Salary: Senior Lecturer A\$39,745-A\$46,179 per annum
Lecturer A\$29,842-A\$38,932 per annum

A clinical loading of A\$5,432 is applicable.

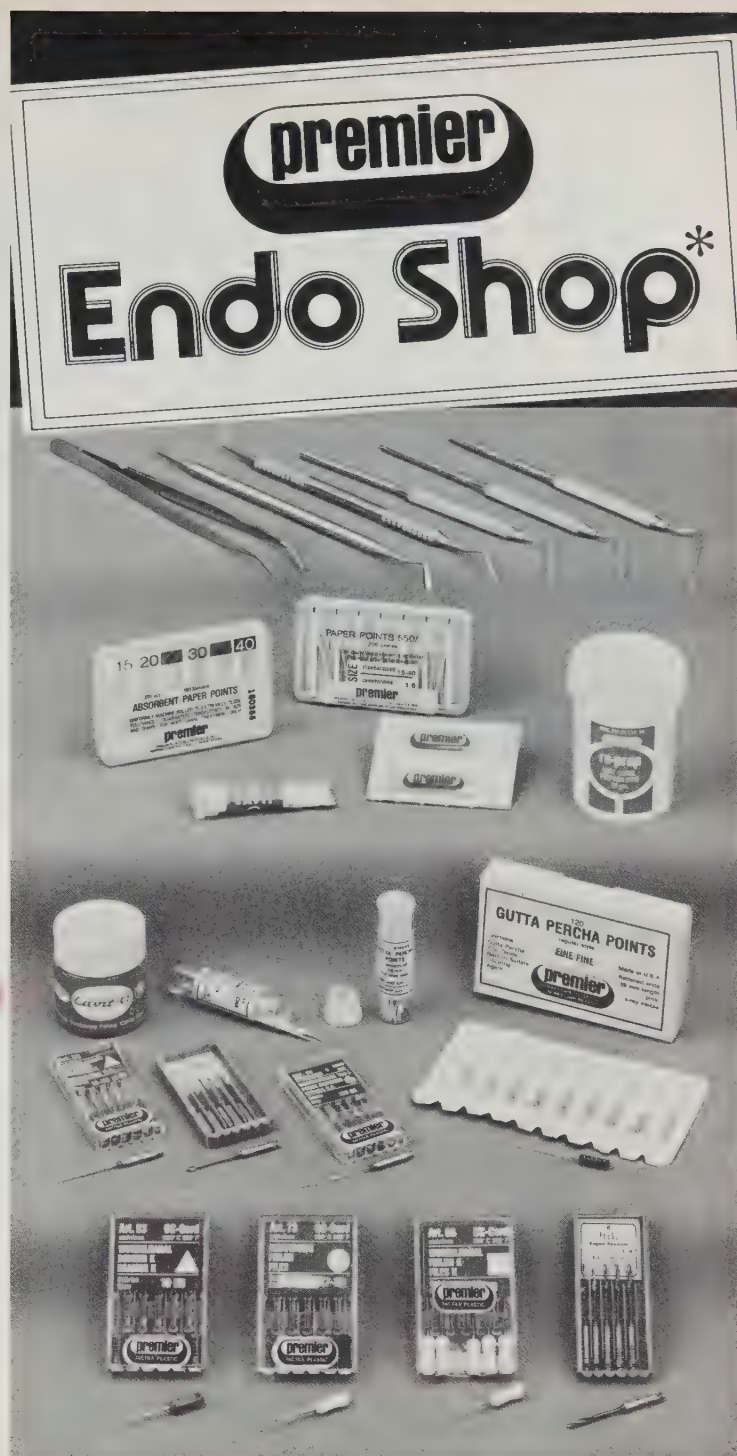
With the approval of the University staff with the rank of lecturer and above may undertake limited consulting work.

Appointments to lectureships/senior lectureships have the potential to lead to tenure and such appointments are usually probationary for three years.

Method of application: Applications, quoting reference number and including curriculum vitae, list of publications and the names and addresses of three referees, to the Registrar, Staff Office, University of Sydney, NSW 2006, Australia, by 30 September 1988, from whom further information is available.

The University reserves the right not to proceed with any appointment for financial or other reasons.

Equal employment opportunity is University policy.



*** ONE STOP ENDO SHOP**
for
SERVICE
RELIABILITY
INNOVATION

A full line available
through your dealer.

premier Dental Products Company
P.O. Box 111, Norristown, PA 19404 - USA
Scarborough, ONT. M1W 3K5 - CANADA

SÉMINAIRE SUR LES QUESTIONS FISCALES

LE 21 OCTOBRE 1988, 9h – 17h

LE MÉRIDIDIEN • MONTRÉAL

Le vendredi 21 octobre 1988, le D^r Robert N. Hicks, de Vancouver Ouest, animera un séminaire sur les questions fiscales à Montréal, Québec.

Le D^r Hicks est président du Comité des questions fiscales de l'ADC. Il sera entouré d'avocats et de conseillers fiscaux qui s'intéressent particulièrement à la situation des praticiens dentaires, tant dans l'exercice de leur profession que dans leur vie personnelle.

Les exposés se donneront en anglais, mais l'auditoire pourra adresser ses questions en français ou anglais.

- | | |
|--|---|
| ☐ La réforme fiscale <ul style="list-style-type: none">• l'impôt sur le revenu• la taxe de vente | ☐ Les conséquences fiscales de la planification successorale |
| ☐ Les conséquences fiscales de la planification financière | ☐ Le fractionnement des revenus |
| ☐ L'investissement dans des abris fiscaux | ☐ Mise à jour touchant l'usage des corporations
(sociétés de gestion professionnelle, sociétés de prestation de services personnels, cabinets constitués en corporations) |

En 1987, le gouvernement a présenté des livres blancs dans lesquels on fait des propositions en vue d'une réforme touchant l'impôt sur le revenu et la taxe de vente. Le Séminaire sur les questions fiscales portera sur les conséquences connues et anticipées de cette réforme pour le praticien dentaire.

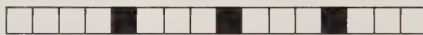
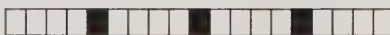
POUR VOUS ASSURER UNE PLACE, INSCRIVEZ-VOUS DÈS MAINTENANT

D E M A N D E D ' I N S C R I P T I O N

Veillez remplir cette demande et la retourner avec votre chèque libellé à l'ordre de:
L'Association dentaire canadienne
1815, promenade Alta Vista, Ottawa, Ontario K1G 3Y6

Nom _____
Adresse _____ Ville _____
Province _____ Code postal _____ Téléphone _____

Mode de paiement:

- ☐ chèque
- ☐ VISA 
- ☐ MasterCard 

Date d'expiration _____

Signature _____

Frais:

Membres de l'ADC: 120\$
Conjoint ou employé accompagnant un membre: 95\$
Autres personnes: 170\$
(y compris les conjoints ou les employés non accompagnés)

(Ces frais comprennent le déjeuner et les rafraîchissements servis aux pauses)

Hébergement:

Veillez téléphoner personnellement au Méridien en demandant les tarifs spéciaux consentis à l'ADC:
Montréal: 1-514-285-1450
Québec, Ontario, Maritimes: 1-800-361-8234
une personne: 105\$ • deux personnes: 125\$

Annulations – Remboursement:

avant le 23 septembre: tous les frais
après le 23 septembre: 75 pour cent des frais
après le 7 octobre: aucuns frais

L'inscription par téléphone sera acceptée avec la carte Visa ou MasterCard.
Composer le: 1-800-267-6364 Québec, Ontario, Maritimes, ou 1-800-267-6354
C.-B., Alberta, Sask, Man et Code régional 807



A chacun son métier

Vous pourriez passer vos journées entières à étudier tout ce que vous devez savoir sur les assurances et les placements. Heureusement, nous l'avons fait pour vous.

Les dentistes du Canada possèdent le CDSPI, votre organisme de services, depuis 1959. Le CDSPI dispose des compétences voulues pour vous fournir les renseignements techniques dont vous avez besoin pour prendre vos décisions d'affaires en toute connaissance de cause.

N'OUBLIEZ PAS QUE :

Les programmes du CDSPI, notamment le Régime d'assurance des dentistes du Canada et le Régime d'épargne retraite de l'ADC, appartiennent aux dentistes du Canada. Les services offerts par le CDSPI, notamment notre analyse des contrats d'assurance et nos services de consultation en planification retraite, vous appartiennent aussi.

Pour toute question, appelez d'abord le CDSPI!
Nous sommes à votre service.



Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11 Québec et Ontario, *sauf* pour la région avec l'indicatif régional 807

497.71.17 Toronto et environs

LE CDSPI EST UN ORGANISME CANADIEN A BUT NON LUCRATIF CHARGÉ D'OFFRIR DES SERVICES DE QUALITÉ À LA PROFESSION DENTAIRE AU NOM DE TOUS SES MEMBRES.

*"I'd like to see an amalgam alloy
with recognized clinical performance."*



Presenting **phasealloy**
a second generation dispersion-phase alloy

- desired compressive strengths
- low creep value
- gamma II phase eliminated after 3 or 4 days
- positive pack condensability
- smooth carving characteristics
- marginal integrity

phasealloy[®]
another top clinical performer

**Now available exclusively
from Hoechst Canada Inc.**

*Reg. Trademark of: Phasealloy Dental Products, Division of Wykle Research, Inc., U.S.A.



and Hoechst, Reg. Trademarks of Hoechst AG, Germany (West)
Authorized user of trademark: Phasealloy[®]
2228/8127/E

Hoechst Canada Inc., Montreal H4R 1R6

Hoechst



EXTRUSION OF ENDODONTIC FILLING MATERIAL into the inferior alveolar canal

A. Ruprecht, DDS, MScD, FRCD(C)
Iowa City, Iowa
H. Wagner, Dr. Med. Dent.
West Germany

ABSTRACT

One of the hazards of obturating root canals with a paste filling material is the unplanned extrusion of the material into the apical area.¹⁻²⁰ This is especially unwelcome if there is an anatomical structure such as the maxillary antrum or inferior alveolar canal in close proximity.⁵ The bone normally present between the root and such structures may be weakened due to the inflammatory process associated with pulpal death, and thus unable to resist the pressure of the material which is forced through the apical foramen with considerable pressure. This possibility is increased if mechanical rather than manual means are used to obturate the canal.¹⁴ It is to remind practitioners of such dangers that the following case is presented.

SOMMAIRE

Lorsqu'on obture des canaux radiculaires

avec des pâtes, il faut en éviter une extrusion imprévue dans la région apicale. Ce danger est particulièrement néfaste lorsque se trouve tout après une structure anatomique comme l'antrum de Highmore ou un canal dentaire du maxillaire inférieur. L'os qui se trouve normalement entre la racine et semblables structures peut être affaibli à cause d'une inflammation procédant d'une nécrose pulpaire et, partant, être incapable de résister à la pression exercée par le matériau poussé avec une force considérable à travers le foramen apical. Ce danger s'accroît davantage si, pour obturer les canaux, on utilise des moyens mécaniques au lieu des méthodes ordinaires. Voici un cas qui rappellera aux praticiens de faire attention à ces dangers.

Case Report

B.D., a 22-year-old female caucasian, presented to the dental clinic on May 3, 1987, with a complaint of intense pain and paresthesia in the area of the lower

right lip and hypesthesia in the area of the chin. According to her history, her lower right second molar (47) had been treated endodontically for a degenerated pulp with periapical inflammation by her family dentist three days previously. According to the history, after biomechanical preparation, the root canals were filled with Gangraena merz (a mixture of calcium hydroxide, barium sulfate and bovine hoof oil), utilizing lentulos. During this procedure the patient suddenly felt a strong pressure in the body of the mandible, accompanied by pain and an immediate loss of sensation in the lower right lip and chin. The dentist finished filling the canals with two gutta percha cones and made a final periapical radiograph, which showed an over-extension of filling material into the area of rarefying osteitis and the inferior alveolar canal. The patient was apprised of the situation and told that the material would be resorbed.

An orthopantomographic radiograph (OPG) made at the time of the presentation to the dental clinic showed the



Fig. 1. The extruded root canal filling material can be seen inferior to the second molar in the area of apical inflammation and as a linear radiopacity in the inferior alveolar canal.



Fig. 2. Most of the extruded material has been removed. The residual material in the canal was left in order to avoid surgical trauma to the nerve.

extruded filling material in the area of rarefying osteitis and a strip of material approximately 2 cm long in the inferior alveolar canal (**Fig. 1**). Clinically, there was pain on pressure in the vestibular area of tooth 47 but no swelling. The #47 was tender to percussion.

The following day, under local anes-

thesia, the roots of #47 were resected (**Fig. 2**), with concomitant curettage of the inflammatory lesion for removal of filling material at the apex. The inferior alveolar canal was opened from the superior aspect. As much of the filling material as possible, without damaging the nerve, was removed to allow decompres-

sion of the canal contents (**Fig. 2**). The incision was closed without problem. No antibiotic was prescribed.

When the patient returned for follow-up two days later, there was a slight swelling of the soft tissue over the operation site but no pain. The altered sensation persisted.

Discussion

Endodontic treatment is a widely accepted mode of therapy that has resulted in the maintenance and function of many teeth that would otherwise have had to be extracted. With conventional manual preparation and obliteration of the root canals, there is less danger of massive extrusion of filling materials into the areas surrounding the apex. Moderate over-extension of gutta percha or slight extrusion of root canal cement can occur with lateral condensation.

LaBanc and Epker¹⁰ reported a case of extrusion of material into the inferior alveolar canal associated with conventional endodontic treatment of a mandibular left second molar. If warm gutta percha techniques or mechanical condensation including rotary instrument placement of cement are used, the same pressure that could be used with relative impunity for manual obturation can lead to more major overfilling of the canals. This is especially true if the bone has been altered or removed due to the inflammatory response in the bone, often associated with pulpal death. In a review of the literature, Orstavik²¹ found 24 incidents of such apical extrusion, all involving lower posterior teeth. Delaire and co-workers⁵ reported 32 cases in the non-English language literature and added 18 of their own. Although such alternative placement methods can result in a great deal of material being extruded into the bone around the apex, such accidents may not cause the patient any problems as many of the filling materials are well tolerated by the periapical tissues.⁹ However, when the apex of the tooth is in close proximity to major anatomical structures such as the maxillary sinus²² or the inferior alveolar canal,^{23,24} the material may be forced into them, as the surrounding cortex may also be weakened by the inflammation in the area. When this occurs, the patient may have considerable pain,^{5,14} altered sensation,^{8,9,25} or infection.

In the case presented here, it is postulated that the roof of the inferior alveolar canal was weakened by inflammation surrounding the apex of tooth 47. When the cement was introduced into the canal of the molar and then forced apically by

the use of Lentulos, it exited through the apex. The pressure behind the material is similar to the pressure that can be exerted on liquids in a syringe. The material may have been forced along the branch of the inferior alveolar canal that sends nerves to the apex of tooth 47 or through the weakened bone at the apex into the inferior alveolar canal. The possibility of such an occurrence must obviously be kept in mind when mechanical means of obturation are used in lower posterior teeth, since there is some loss of the fine tactile sensations that are present with manual placement.

The second consideration if such an accident occurs is that, unlike the apical extrusion of accepted zinc oxide and eugenol cements which are often well tolerated by the patient,^{8,9} and necessitate no further action than observation, penetration of the inferior alveolar canal, especially with materials that may be cytotoxic, can cause major problems with sensation, due partially to the compression of the nerve,^{3,23,26,27} and partially to contact of the nerve with chemicals, such as formaldehyde or paraformaldehyde, in some of the compounds,^{8,9,27-30} or eugenol.³¹ The destructive effect of paraformaldehyde on bone and soft tissues was shown by Heling and co-workers.³² However, Barker and Lockett³ reported that the apical reaction to formaldehyde was surprisingly small.

Orstavik et al²¹ state that the prognosis appears to be poor if the material cannot be removed from the inferior alveolar canal. This is in keeping with the theory of Delaire and co-workers⁵ who believed that rapid surgical intervention was of the essence, supported by Schmelzle,³³ who found that the length of time required for the return of normal sensation was directly related to the length of time that the filling material was in the inferior alveolar canal. Hartmann,³⁴ however, reported a case involving tooth 47 in which the patient declined surgical treatment; the altered sensation resolved by itself in three weeks. Lindner³⁵ reported a case in which the material was spontaneously exfoliated by the body, resulting in eventual restoration to normal feeling after 261 days. Haag³⁶ suggests that treatment should be undertaken in the first six weeks. Thus, such a situation should be treated immediately to avoid permanent damage to the nerves.^{3,8,9} It can be avoided by selecting materials with the least possible neurotoxic effect and avoiding the use of syringes or rotary instruments when placing filling pastes or cements in lower posterior teeth.^{21,37} In our patient, as much of the material as

possible, without damaging the nerve, was removed, thus relieving the pain. The remaining paresthesia could be due to the material left in situ or damage from the initial traumatic insult.

Summary

A case report is presented whereby root canal paste filling material was extruded through the apex of tooth 47. Some of this material entered the inferior alveolar canal, causing altered sensation and intense pain. Surgical removal of part of the material three days later relieved the pain but did not alter the paresthesia. Δ

Dr. Ruprecht, former head of the Radiology Section in the Dental School of the University of Marburg, West Germany, is currently professor and director of oral and maxillofacial radiology, Department of Oral Pathology and Diagnosis, College of Dentistry, University of Iowa.

Dr. Wagner, former staff oral surgeon in the Dental Policlinic of the University of Marburg, West Germany, is currently in private practice in 3556 Niederweimar, West Germany.

Reprint requests to Dr. Ruprecht, College of Dentistry, University of Iowa, Iowa City, Iowa 52242, U.S.A.

References

- Allard, K.U.B. Paresthesia — a consequence of a controversial root-filling material? A case report. *Int Endodont J* 19:205-208, 1986.
- Barkhordar, R.A. and Nguyen, N.T. Paresthesia of the mental nerve after overextension with AH26 and gutta-percha: report of a case. *JADA* 110:202-203, 1985.
- Barker, B.C.W. and Lockett, B.C. Periapical response to N2 and other paraformaldehyde compounds confined within or extruded beyond the apices of dog root canals. *Dent Pract* 22:370-379, 1972.
- Brewer, D.L. Histology of apical tissue reaction to overfill. *J Calif Dent* 3:58-62, 1975.
- De laire, J., Billet, J., Lumineau, J.-P. et al. Consideration sur le refoulement dans le canal dentaire inférieur de substance obturatrice. *Rev Stomatol* 78:323-332, 1977.
- Ehrmann, E.H. Treatment with N2 root canal sealer. *Br Dent J* 117:409-411, 1964.
- Foreman, P.C. Adverse tissue reactions following the use of Spad. *Int Endodont J* 15:184-186, 1982.
- Grossman, L.I. and Tatoi, J. Paresthesia from N2. Report of a case. *Oral Surg* 46:700-701, 1978.
- Grossman, L.I. Paresthesia from N2 or N2 substitute. *Oral Surg* 45:114-115, 1978.
- LaBanc, J.P. and Epker, B.N. Serious inferior alveolar nerve dysesthesia after endodontic procedure: report of three cases. *JADA* 108:605-607, 1984.
- Langeland, K. and Walton, R.E. Sargenti (N2) Technique. In Clark, J.W. (ed). *Clinical Dentistry*, Philadelphia, Harper & Row, 1982, p. 11.
- Montgomery, S. Paresthesia following endodontic treatment. *J Endodont* 2:345-347, 1976.
- Orlay, H. Overfilling in root canal treatment: two accidents with N2. *Br Dent J* 120:376, 1966.
- Orr, D.L. 2d. Paresthesia of the trigeminal nerve secondary to endodontic manipulation with N2. *Headache* 25:334-336, 1985.

- Petersen, J.K. Om paraesthesi efter rod fyldning med AH-26. *Tandlaegebladet* 89:598-599, 1985.
- Quadu, G. and Miotti, A. Una complicanza del trattamento endodontico: l'anestesia del nervo alveolare inferiore. *Minerva Stomatol* 32:95-100, 1983.
- Rowe, A.H. Damage to the inferior dental nerve during or following endodontic treatment. *Br Dent J* 155:306-307, 1983.
- Serene, T.P., McKelvy, B.D. and Scaramella, J.M. Endodontic problems resulting from surgical fistulation: report of two cases. *JADA* 96:101-104, 1978.
- Tschamer, H. Vorläufige klinisch-röntgenologische Kontrollergebnisse nach Wurzelkanalfüllungen mit den Wurzelfüllmitteln AH 26 (De Trey), Renium (Cardex), N 2 (Sargenti) und der Kunstharz kombinierten Wurzelfüllmasse nach Riebler. *DZZ* 18:394-406, 1963.
- Urbani, G., Cavalleri, G., Castellani, G. et al. Lesioni al nervo alveolare inferiore provocate dall'introduzione nei canali mandibolare di sostanze usate in terapia endodontica. *Minerva Stomatol* 32:95-100, 1983.
- Orstavik, D., Brodin, P. and Aas, E. Paresthesia following endodontic treatment: survey of the literature and report of a case. *Int Endodont J* 16:167-172, 1983.
- Orr, D.L. 2d. Paresthesia of the second division of the trigeminal nerve secondary to endodontic manipulation with N2. *Headache* 27:21-22, 1987.
- Forman, G.H. and Rood, J.P. Successful retrieval of endodontic material from the inferior alveolar nerve. *J Dent* 5:47-50, 1977.
- Shochat, S. and Garfunkel, A. Neurologic complications arising from overfilled root canals. *Oral Surg* 35:684-688, 1973.
- White, E. Paper point in mental foramen. *Oral Surg* 25:630-632, 1968.
- Pyner, D.A. Paresthesia of the inferior alveolar nerve caused by Hydron: a case report. *J Endodont* 6:527-528, 1980.
- Spielman, A., Gutman, D. and Laufer, D. Anesthesia following endodontic overfilling with AH26. *Oral Surg* 52:554-556, 1981.
- Kaufman, A.Y. and Rosenberg, L. Paresthesia caused by endomethasone. *J Endodont* 6:529-531, 1980.
- Spangberg, L. Biologic effects of root canal filling materials. *Oral Surg* 38:934-944, 1974.
- Tamse, A., Kaffe, I., Littner, M.M. et al. Paresthesia following overextension of AH-26: report of two cases and review of the literature. *J Endodont* 8:88-90, 1982.
- Kozam, G. The effect of eugenol on nerve transmission. *Oral Surg* 44:799-805, 1977.
- Heling, B., Ram, Z. and Heling, I. The root treatment of teeth with Toxivit. *Oral Surg* 43:306-309, 1977.
- Schmelzle, R. Sensibilitätsstörungen des Nervus alveolaris inferior. *Dtsch Zahnärztl Z* 41:792-794, 1986.
- Hartmann, J.-J. Überstopfer Wurzelkanal. *Quintessenz Int.* 36:2071-2072, 1985.
- Lindner, G. Irritation des Nervus mentalis nach Wurzel-füllung des linken, unteren zweiten Prämolaren. *Quintessenz Int* 22:29-30, 1971.
- Haag, R. Intervention Décompressive du Nerf Dentaire Inférieur à la Suite d'Introduction Accidentelle de Pâte d'Obturation dans le Canal Dentaire. *Rev d'Odont-Stomatol* 3:207-214, 1974.
- Ehrmann, E.H. Root canal treatment with N2. *Aust Dent J* 8:434-438, 1963.

**DEDICATED TO THE
MEDICAL PROFESSION**

MDICL[®] INC.



MIDICL INC.
175 TORYORK DRIVE, UNIT #6
WESTON, ONTARIO
M9L 2Y7

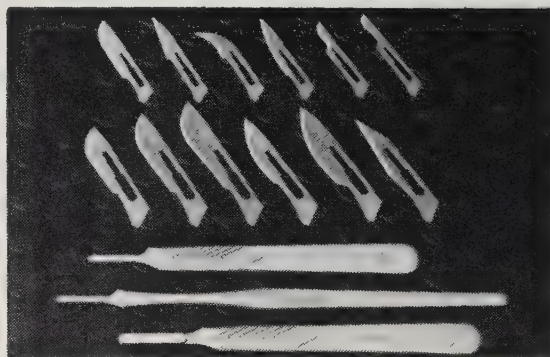
Please call from anywhere in Canada
Toll Free - 1-800-387-7477

TEL: (416) 747-1125
FAX: (416) 783-5795

SUPER SPECIALS 1988

STERILE SURGICAL BLADES

AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20,
21, 22, 23, 24, 25



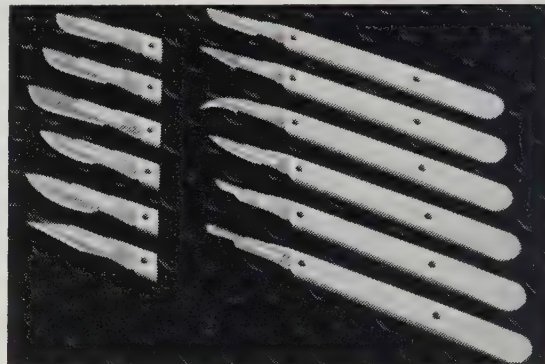
SUPERB SHARPNESS, FOIL WRAPPED, IN QUICK DISPENSER BOXES.
MADE IN JAPAN FROM THE HIGHEST QUALITY MATERIALS, FOR
ASSURED UNIFORMITY.

VERY SPECIAL PRICE

ANY SIZE **\$17.99** Box of 100

STERILE DISPOSABLE SCALPELS

HIGH QUALITY BALANCES WITH A SUPERB
ARROW SHAPED DESIGN FOR ASSURED GRIP



EACH SCALPEL IS PACKED IN A POLYESTER SHEET OF ALUMINUM FOIL
TO PROTECT BLADE EDGES. CONVENIENTLY PACKED IN DISPENSER
BOXES. AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20, 21, 22, 23, 24, 25

VERY SPECIAL PRICE

ANY SIZE **\$11.99** Box of 20

SILK SURGICAL SUTURES

HIGHEST QUALITY OF SWISS MADE SUTURES OVER 40
YEARS WORLD MARKET - AVAILABLE IN ALL SIZES & TYPES.

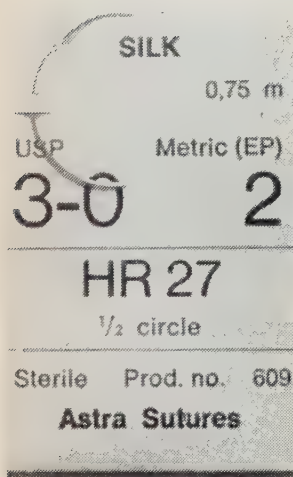
NEEDLES ARE SHOWN IN
ACTUAL SIZE OF SHAPE & LENGTH

TS-needles

3/8 CIRCLE, REVERSE CUTTING

HS-needles

1/2 CIRCLE, REVERSE CUTTING



OTHER SIZES & STYLES
ARE AVAILABLE

VERY SPECIAL PRICE

ANY SIZE **\$17.99** Box 12

SUNDRY SPECIALS

1. Dental bibs, 3 Ply 500 per package \$23.99
2. Dental bibs, waterproof 500/boxed \$34.99
3. Sterilizing solution BIOCIDE-R 4/4L \$79.99
4. Latex Gloves S/M/L Per 100 \$17.99
5. STERIWIPES - Towelettes with Chlorhexidine Gluconate ea. \$5.99
6. CANPROCAINE - Topical Anesthetic Spray/5% Lidcoaine 150ml \$8.99
7. DERMAGUARD - Microcidal hand protectant \$7.99
8. Aneroid Blood Pressure Kit & Stethoscope \$29.99
9. Resuscitator Kit with case \$179.00
10. TENS DUAL CHANNEL - Variable Mode \$179.99
11. Lab Coats Saniguard treated to fight infection \$24.75
12. Face Masks Slip On's 50 per box \$13.99

VISA & MASTERCARD ARE WELCOME.



You can't be an Expert in Everything!

You could make a full-time career out of studying everything you need to know about insurance and investments. But we have done this for you.

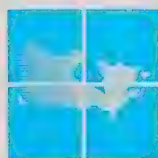
The dentists of Canada have owned CDSPI, *your* service organization, since 1959. CDSPI has the expertise available to provide the technical information you need to make informed business decisions.

REMEMBER:

CDSPI's programs — including the Canadian Dentists' Insurance Program and the CDA Retirement Savings Plan — belong to the dentists of Canada.

CDSPI's services — including our insurance review service and our Retirement Counselling Program — also belong to you.

When you need answers, call CDSPI first — we're here to help you!



CDSPI

For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario **except** Area Code 807

497-7117 Metro Toronto

CDSPI IS A CANADIAN NON-PROFIT CORPORATION DEDICATED TO THE ONGOING PROVISION OF QUALITY SERVICES TO THE DENTAL PROFESSION ON BEHALF OF ORGANIZED DENTISTRY

How to check plaque between checkups and check out new sales.



Plaque. The number one oral health problem.

Dental professionals have long recognized the serious consequences of plaque. Cavities and tooth staining, periodontal disease and, eventually, loss of teeth.

Now there is a simple, in-home method for thoroughly removing plaque *every day*.

New Plax*.

Unique plaque control.

First in a new class of home dental care products, Plax* is the *only* oral rinse specifically formulated to remove plaque from teeth.

Removes plaque easily and effectively.

Plax* removes 3 times more plaque than just brushing¹ with even more dramatic results in hard-to-brush areas.¹ Clinically tested,^{2†} Plax* is pleasant-tasting, easy-to-use and non-abrasive.

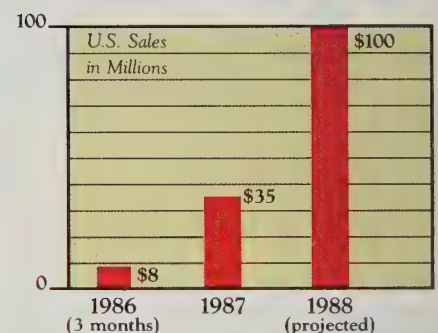
Plax*. A new product success story.

Since its 1986 launch in the U.S., Plax* has been widely recognized as an "Instant Winner".

Thousands of Dentists and Hygienists have recommended Plax*.



Plax* was *Fortune Magazine's* 1986 "Product of the Year" and the winner of the prestigious Rex award in 1987.



Creates a new category of sales.

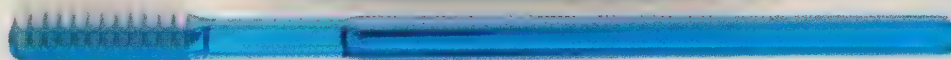
All sales are totally incremental. No "swaps" or "trade-offs" with other products because Plax* is used with any toothpaste and floss.

Heavy ad support. Both consumer and professional.

With High-frequency TV, Instant-redeem Coupons, Co-op Mail and In-store Displays, Plax* is directly reaching consumers.

Extensive Journal Advertising and an aggressive Direct Mail Programme are encouraging Dentists and Hygienists to recommend Plax* to their patients.

New Plax*, the *only* pre-brushing dental rinse that checks plaque between checkups.



Checks Plaque Between Checkups.

References: 1. Emling RC, Yankell SL. Comp Contin Ed 1985;6:637-645. 2. Data on file, Oral Research Laboratories, Inc. †based on in vitro and in vivo testing.
*TM Oral Research Laboratories Inc. Leeming Div., - Pfizer Canada Inc., auth. user. Active Ingredients: Sodium Benzoate 2.00%, Sodium Salicylate 0.20%, Sodium Lauryl Sulfate 0.25%.

**PAAB
CCPP**

LONG-TERM COMPARISON OF TWO SURGICAL FLAP DESIGNS

for third molar surgery on the health of the
periodontal tissue of the second molar tooth

I.D.F. Schofield, DDS, FRCD(C), FICD

S.L. Kogon, DDS, MS

A. Donner, BSc, MSc, PhD
London, Ont.

INTRODUCTION

The periodontal status of the distal of the second molar after third molar surgery has been a controversial topic for years. The Workshop of the National Institute of Health, Consensus Development Conference for the Removal of Third Molars, November 1979, summarized their findings by stating that "Both short- and long-term studies be undertaken in a number of areas relating to periodontal considerations in third molar surgery."¹ Although there have been reports^{2,3} on the short-term effects on the periodontium, a study was required to evaluate the health of these tissues after a sub-

stantial healing period had elapsed. This study is an attempt to address this problem.

SOMMAIRE

Durant de nombreuses années, l'état du parodonte en position distale de la deuxième molaire, après extraction de la troisième molaire, a prêté à controverse. Lors de l'atelier tenu en novembre 1979 par le National Institute of Health pour en arriver à un consensus touchant l'extraction des troisièmes molaires, on a conclu qu'il fallait entreprendre à ce sujet de brèves et longues études portant sur divers points d'ordre parodontal. Bien qu'il y ait eu des rapports de publiés sur

les effets à court terme de ces extractions sur le parodonte, il a fallu effectuer une étude pour juger de la santé de ces tissus après une longue période de guérison. Nous tentons ici de résumer la question.

Method

This study compared the results of two types of flaps used to gain access for surgical removal of like third molars. Fifty patients initially entered the study, however on recall one year later, only 23 remained for final assessment. Since the original sample included a large number of mobile university students, the recall rate of 23/50 was considered acceptable for the purpose of this study.

Prior to surgery, periodontal and radiographic assessments were carried out. At the time of surgery, the type of surgical flap used on each side (Figs. 1 and 2) was decided by the flip of a coin. All surgery was carried out by one operator (IDFS) and all preoperative and postoperative clinical assessments by the same research assistant.

The age range of the 23 patients was 17-27 years. The average age of the 13 females was 22.6 and the 10 males was 21.9 years. All patients were in good health (ASA class one). Four of the females were taking oral contraceptives. Using a pre-operative diagnostic panoramic radiograph, an attempt was made to select patients who had bilateral third molar impactions of similar types and severity. Only those cases which would not require removal of bone distal to the second molar were accepted.

At the pre-operative diagnostic appointment, the depth of the gingival sulcus on the buccal, distal and lingual of the mandibular second molars was measured with a William's periodontal probe. A total of nine measurements were made for each side, and a bleeding and plaque index were also taken. In addition a gingival crevice fluid measurement* was taken.

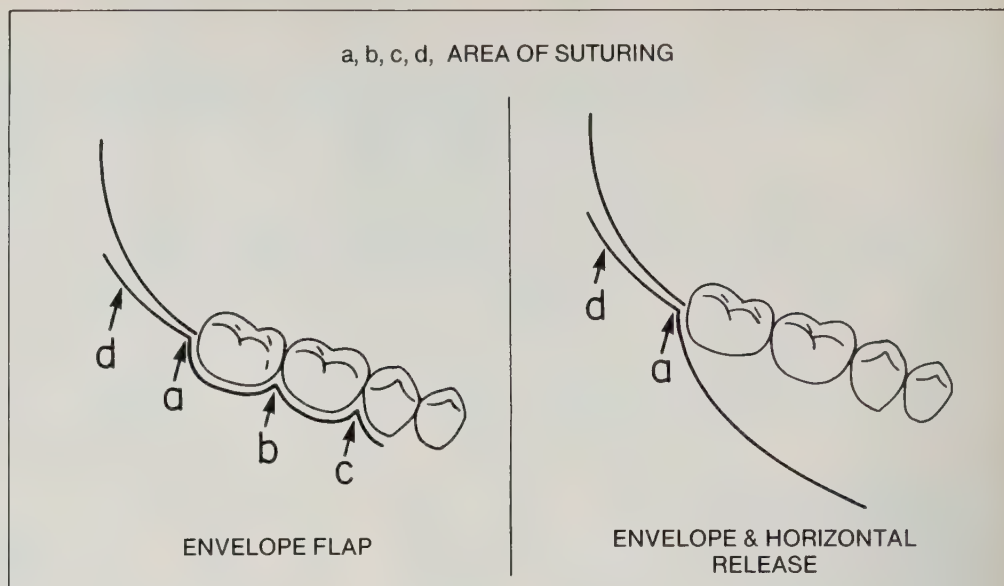
A standardized pre-operative periapical radiograph was made using a modification of an accepted technique.⁴ Kodak Ektaspeed film, developed in an automatic processor, was used for all periapical radiographs.

Surgical Description

The patients were required to sign a consent form which had been approved by the Human Experimentation Committee of The University of Western Ontario.

The third molars were removed by standard surgical techniques for mesio-angular, horizontal, vertical and disto-angular impactions as described by Kruger;⁵ 3.0 silk sutures were used to close the surgical sites. The surgeries were carried out in the same operating room to standardize the aseptic technique. A general anesthetic utilizing nasal endotracheal intubation supplemented with Bupivacaine for long-term postoperative analgesia was used for all cases. All patients were sent to the recovery room in good condition. On discharge they were given the standard postoperative instructions and prescriptions for analgesia and/or antibiotics as required.

Patients were seen 3-5 days later for suture removal and 2-3 weeks later for



Figs. 1 & 2 Schofield et al.

TABLE I

Difference in measurement between horizontal and vertical flaps at one year

	n	d	SD	t	P-value
Bone Level	15	0.13 mm	.457	.593	> .5
Pocket Depth					
Buccal Distal	23	-0.13	1.87	-.335	> .5
Mid	22	0.00	0.93	.000	> .5
Mesial	22	-0.05	1.17	-.182	> .5
Lingual Distal	21	0.00	1.48	.000	> .5
Mid	20	-0.10	0.79	.568	> .5
Mesial	20	0.20	1.20	.748	> .5
Distal Lingual	22	-0.09	1.82	-.234	> .5
Mid	19	-.011	1.29	-.357	> .5
Buccal	17	0.00	1.70	.000	> .5
Crevicular Fluid	25	.72	6.13	.584	> .5

additional evaluation of the healing process. At this time no additional intervention was required for any patient. Unless unforeseen complications arose, the patients were instructed to return one year later for periodontal and radiological reassessment. At that time the nine periodontal sulcus measurements, bleeding and plaque indices, a crevicular fluid measurement and the standardized periapical radiographs were repeated.

Results

Bone Level

To establish a baseline from which to measure postoperative alteration in bone level, the cemento-enamel junction on the distal of the second molar and the most superior point on the alveolar crest were noted on the pre-operative radiograph. It

became apparent that the exact position of the alveolar crest could not be determined with any confidence. Although Meister et al.⁶ claimed they could find this point in their 10 patients, we were not confident that we could do so with accuracy on both the right and left sides for each patient. This measurement was abandoned and only the one-year postoperative position of the alveolar crest height was used in the evaluation.

The hypothesis tested was that there was no difference between the height of alveolar bone measured at the distal of the second molar between the sides that received the vertical flap and the horizontal flap. A standard paired t-test was used to test the hypothesis. The measurement error associated with the experimental method was estimated at 0.03 mm per measurement.⁷ The results are shown in Table I.

*Peritron, Harco Electronics Ltd., Winnipeg, Manitoba.

TABLE II

The percentage difference in plaque and bleeding indices between vertical and horizontal flaps at one year

Change	Plaque		Bleeding	
	Vertical Flap	Horizontal Flap	Vertical Flap	Horizontal Flap
+	30.8	34.6	42	42
-	7.7	15.4	4	4
0	61.5	50.0	54	54

Periodontal Pockets and Crevicular Fluid

The data for the periodontal pocket depth and crevicular fluid were handled in a manner similar to the bone levels and are also shown in Table I.

Bleeding and Plaque Indices

Chi-square tests were used for analysis of the bleeding and plaque scores. A positive result was defined as a change from a bleeding point before surgery to no bleeding one year after; a negative result was defined as no bleeding before surgery but bleeding at one year. No change in bleeding before and after was scored a zero. The results are shown in Table II. The difference in the plaque index between the test groups was not statistically significant, $\chi^2_2 = 3.98$ $p > 0.1$ using a two-tailed test.

Discussion

At suture removal, most patients still had some degree of edema, trismus and bleeding on probing. There was no clinically apparent difference between sides. The wound healing at two weeks revealed slight edema and moderate inflammation. No readings were taken at this stage as mild edema produced bleeding on probing. Stephens et al² re-evaluated their patients at six and 12 weeks and found a significantly healthier condition in the surgical sites at 12 weeks compared to the pre-operative readings. However, they could find no significant difference between flap design on the postoperative health at 12 weeks. Chin Quee et al,³ in a similar study, found that although there was some loss of attachment after surgery, there was no difference between flap design at six months. We chose the recall period of one year so that we could assess final osseous and soft tissue levels. Our results support and extend the results of Stephens et al and Chin Quee et al. It is apparent that the lack of any clear

difference in periodontal health of tissues about the second molar in the early phases of healing is maintained and can be assumed to be permanent. The selection of a flap design for mandibular third molar surgery is dependent on the needs of the case and preference of the surgeon and does not seem to have a lasting effect on the health of the periodontium on the distal of the second molar.

Summary

In cases where bone removal is not indicated distal to the second mandibular molars, one year postoperative evaluation reveals that no difference exists in the health of the periodontium tissues as a result of using a vertical or envelope flap. Δ

The authors wish to thank Mrs. C. Bowser (hygienist) for the collection of clinical data and Mr. D. Favell (senior dental student) for his assistance in preparing the tables.

This study was supported in part by an Academic Development Fund from The University of Western Ontario, London, Ontario.

Dr. Schofield is Professor and Chairman, Division of Oral and Maxillofacial Surgery and Hospital Dentistry, Faculty of Dentistry, The University of Western Ontario, London, Ont. N6A 5C1.

Dr. Kogon is Professor and Chairman, Divisions of Oral Medicine and Periodontics, Faculty of Dentistry, The University of Western Ontario.

Dr. Donner is Professor and Chairman, Department of Epidemiology and Biostatistics, Faculty of Medicine, The University of Western Ontario.

Reprint requests to Dr. Schofield.

References

1. Guralnick, W.G. and Laskin, D.M. Consensus Development Conference: Removal of Third Molars, Bethesda, MD, National Institute of Health, November 28-30, 1979.
2. Stephens, R.J., App, G.R. and Foreman, D.W. Periodontal evaluation of two mucoperiosteal flaps used in removing impacted third molars. *J Oral Maxillofac Surg* 41:719-724, 1983.
3. Chin Quee, T.A., Gosselin, D., Millar, E.P. et al. Surgical removal of the fully impacted third molar. The influence of flap design and the alveolar bone height on the periodontal status of the second molar. *J Periodont* 56:626-630, 1985.
4. Silver, J.G., Catherall, D.M., Eastep, P.B. et al. Sequential reproduction of intra-oral radiographs. *J Canad Dent Ass* Vol. 40: 51-54, 1974.
5. Textbook of Oral and Maxillofacial Surgery, Gustav Kruger, Ed. 5. Toronto, C.V. Mosby Co., pp. 81-82.
6. Meister, F., Nery, E.B., Angell, D.M. et al. Periodontal assessment following surgical removal of mandibular third molars. *Gen Dent* March/April: 120-123, 1986.
7. Chebib, F.S. and Burdick, J.A. Evaluation of measurement error. *J Gen Psychol* 89:47-58, 1973.

DEPARTMENT OF SURGERY HEALTH SCIENCES CENTRE WINNIPEG

Head, Section of Dental & Oral & Maxillo-facial Surgery

Applications are invited for a full-time appointment to direct the programs at a 1,200 bed tertiary care centre. The programs include a pediatric clinic, an adult dental clinic, two internship programs and an oral surgery maxillo-facial graduate program. The position carries with it a cross-appointment at the Faculty of Dentistry.

The applicant will require experience in program administration and in the management of medically compromised patients. An education component for dental undergraduates and interns will also be part of the duties.

The successful applicant will be expected to participate in the clinical work of the adult clinic and will be granted one day a week for private practice. Research opportunities will be encouraged in conjunction with other University staff.

The position is to be filled by January 1, 1989. In accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Applications should include a curriculum vitae and the name of three references and be sent to:

Dr. R.J.W. Blanchard
Professor and Head
Department of Surgery
Health Sciences Centre
820 Sherbrook Street
Winnipeg, Manitoba. R3A 1R9

9:00 a.m. – 5:00 p.m.

- ☐ Income Splitting
- ☐ Tax Implications in Estate Planning
- ☐ Update on the Use of Corporations
(Professional Management Companies,
Personal Service Corporations, Incorporated
Practices)

REGISTER NOW TO RESERVE YOUR PLACE

R E G I S T R A T I O N F O R M

Cancellation after Oct. 7 – no refund.

September 1988 Vol. 54 No. 9

Announcements

October/Octobre 1988

October 2-5: American Academy of Maxillofacial Prosthetics at Stouffers Harborplace Hotel in Baltimore, Maryland. For more details, contact: Dr. Gregory R. Parr, Medical College of Georgia, School of Dentistry, Augusta, GA 30912 U.S.A. (404) 721-2554.

October 4-7: American College of Prosthodontists at Stouffer's Hotel in Baltimore, Maryland. For more details, contact: Ms. Linda Wallenborn, 1777 NE Loop 410, Suite 904, San Antonio, TX 78217 U.S.A. (512) 829-7236.

October 4-7: American Academy of Dental Radiology at the Sheraton Hotel, Washington, D.C. For details, contact: Dr. William Wege, Medical College of Georgia, Augusta, GA 30912 U.S.A. (404) 828-2935.

October 5-7: 51st Annual Meeting of the American Association of Public Health Dentistry in Washington, DC. For information: Dr. R.G. Rozier, Dept. of Health Policy, CB 8140, Kron Building, University of North Carolina, Chapel Hill, NC 27599-8140, U.S.A.

October 6-8: Academy of Dentistry International at the Sheraton-Washington Hotel in Washington, D.C. For information, contact: Dr. Clifford F. Loader, 7804 Calle Espada, Bakersfield, CA 93309 U.S.A. (805) 832-3236.

October 6-9: American Association of Women Dentists at the Grand Hyatt-Washington Hotel in Washington, D.C. For information, contact: Ms. Cheryl Kraus, 211 E. Chicago Ave., Suite 948, Chicago, IL 60611 U.S.A. (312) 337-1563.

October 7: 2nd Annual Bernard Jankelson Memorial Lecture sponsored

by the International College of Cranio-Mandibular Orthopedics at the Hyatt Regency, Washington, DC. Jerold J. Principato and J. Michael Dierkes are featured speakers. For details: ICCMO International Headquarters, 830 Marsh & McLennan Building, Seattle, WA 98101 U.S.A.

October 8-14: ADA/FDI Joint 1988 World Dental Congress Dentistry: Caring for the World at Washington, D.C. For more information, contact: Congress Secretariat, ADA/FDI Joint 1988 World Dental Congress, c/o American Dental Association, 211 East Chicago Ave., Chicago, Illinois 60611 USA or FDI Headquarters, Fédération dentaire internationale, 64 Wimpole St., London W1M 8AL, United Kingdom.

October 9-14: International Workshop on Cranio-facial Trauma sponsored by the Australian Cranio-Maxillo-Facial Foundation. For information, contact: Mrs. D. Moody, Executive Officer, 226 Melbourne St., North Adelaide, S.A. 5006, Australia.

October 10-15: American Academy of Implant Dentistry at the J.W. Merriot Hotel in Washington, D.C. For registration information, contact: Mr. John P. Winiewicz, P.O. Box 2002, Abington, MA 02351 U.S.A. (617) 878-7990.

October 12-16: American Society of Dentistry for Children at the Sheraton Bal Harbour, Bal Harbour, Florida. For information: Ms. Lana Wos, 211 E Chicago Ave, Suite 920, Chicago, IL 60611 U.S.A. (312) 943-1244.

October 17-21: Clinical and Radiological Diagnosis of the Temporomandibular Joint in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

October 19-21: Health Education in Action sponsored by Saskatchewan Institute of Applied Science and Technology at the Sheraton, Regina, Saskatchewan. For more information, write or phone: (306) 787-0113, Elaine McNeil, Box 566, Regina, Sask. S4P 3A3.

October 19-21: Annual Conference of the Canadian Society of Forensic Science at the Westbury Hotel in Toronto. Theme: Advances in Technology: The Impact on Forensic Science. For further information, please contact: Canadian Society of Forensic Science, 2660 Southvale Cres, Suite 215, Ottawa, Ont. K1B 4W5 (613) 731-2096.

October 25-27: Medical/Hospitech 88 – 2nd International Medical, Hospital and Dental Equipment and Facilities Exhibition in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 22/F., 151 Gloucester Rd., Hong Kong. Telephone: 5-8326100.

October 26-29: American Academy of Periodontology at the Sheraton Harbor Island Hotel in San Diego, California. Contact: Ms. Jean Pierson, 211 E Chicago Ave, Suite 924, Chicago, IL 60611 U.S.A. (312) 787-5518.

October 26-29: 42nd Annual Meeting of American Academy for Cerebral Palsy and Developmental Medicine Deadline for free papers: February 12, 1988. Royal York Hotel, Toronto. INFO: AACPDM, P.O. Box 11086, Richmond, Virginia 23230 USA.

October 26-29: 8th Panhellenic Dental Congress at the Rhodes Palace and Metropolitan Capsis in Rhodes, Greece. For more information, please contact: Hellenic Dental Association – 8th Panhellenic Dental Congress, 38 Themistokleous St., 106 78 Athens, Greece. Tel: 36.13.380 – 36.03.816.

October 27-31: 23rd Indian Orthodontic Conference followed by Post Conference Workshop at the Manali Hill Resort. For details and registration forms, contact: Dr. Pradip Jayna, Organising Secretary, 23rd I.O.C., M-75, Connaught Place, New Delhi - 110001, India. Phone: 332-9516 or 9517.

October 28-29: Clinical Applications of Osseointegrated Implants sponsored by The Ontario Dental Association in conjunction with the Ontario Society of Oral & Maxillofacial Surgeons at the Sheraton Centre Hotel, Toronto. To register, contact: Professional Development, The Ontario Dental Association, 234 St. George St, Toronto, Ont. M5R 2P1 (416) 922-3900.

October 28-November 1: American Institute of Oral Biology in Palm Springs, California. For details: Dr. Philip J. Boyne, Dept. of Surgery, Loma Linda University Medical Center, Loma Linda, CA 92350 U.S.A. (714) 824-4671.

November/Novembre 1988

November 10-13: Joint Meeting of the Canadian and American Pain Societies in Toronto at the Hilton-Harbour Castle Hotel. For information, contact: Canadian Pain Society, 3655 Drummond St, Room 1202, Montréal, Québec H3G 1Y6.

November 13-16: The Saul Kamen Seminar in the Management and Treatment of the Developmentally Disabled Dental Patient sponsored by the Dept of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center State University of New York at Stony Brook. For further information, please contact: Ann J. Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York 11042 U.S.A. (718) 470-8650.

November 18: Sicher Memorial Lecture sponsored by the Alpha Omega Dental Fraternity at the Westin Bayshore Hotel in Vancouver, BC. "New Horizons in Dentistry" with David Garber. For registration contact: Dr. W.C. (Fred) Weinstein, #515-750 W Broadway, Vancouver, BC V5Z 1H4.

November 19-20: Restorative Techniques For Osseointegrated Implants Two Day OSI Certification Course —

Branemark endosseous implants — in Palms Springs, California. Basic review of surgical implantology and much more. For more information, contact Dr. Albert Weissman, Desert Dental Implant Center (619) 341-7881.

November 20-23: 39th Annual Educational & Scientific Meeting of the Ontario Public Health Association "Equity in Health". For information, contact: Conference Pre-registration, Ontario Public Health Association, 102 Adelaide St E., 2nd floor, Toronto, Ont. M5C 1K9.

Novembre 21-24: Congrès international de l'Association dentaire française et le Festival international du Film et de la Vidéo dentaires à Paris. Renseignements: A.D.F., 92, av. de Wagram, 75017 Paris, France.

November 23-25: Swedish Dental Society in Stockholm Sweden. For information, write: Ms A.C. Nackstad, Nybrogatan 53, S-114 40 Stockholm, Sweden.

November 23: Centennial Celebration! 100 years of Dentistry at U of T. Dental Alumni Association Centennial Dinner/Dance (night before Winter Clinic) at L'Hotel Ballroom in Toronto. For reservations and further information, contact: Dentistry Department of Alumni Affairs (416) 979-4389.

November 24: 51st Annual Winter Clinic Toronto Academy of Dentistry at the Metropolitan Toronto Convention Centre, 255 Front Street W, Toronto, Ont. For information, contact the Academy of Dentistry at (416) 967-5649.

November 28-December 2: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

December/Décembre 1988

December: 43rd Indian Dental Association Conference in Pune India. For more information, contact: The Indian Dental Association, 20-A D.B. Road, R.S. Puram, Coimbatore 641 002 India.

December 2: First National Bilingual Low Power Laser Therapy Conference in Ottawa, Ontario. Contact: Ms Lucie Brosseau, Physiotherapy Programme, Health Sciences Faculty, University of Ottawa, 451 Smyth Rd, Ottawa, Ont K1H 8M5.

December 2-4: 12th Annual Session and Scientific Meeting of the Association for Dental Sciences of the Republic of China in Taipei, Taiwan. For information, contact: Dr. Kun-Chee Chen, 7F, No. 120, Sec 2, Chung Hsiao E Rd, Taipei, Taiwan.

January/Janvier 1989

January 15-21: Barbados Dental Association Mid-Winter Meeting. For more information, contact: Dr. O.F. Weel, President, Barbados Dental Association, P.O. Box 95, Bridgetown, Barbados.

January 27-29: Dentistry for the Nineties An International Dental Congress sponsored by the College of General Dental Practitioners of Sri Lanka. For details, contact: Dr. L.S.W. Dassanayake, International Dental Congress, College of General Dental Practitioners of Sri Lanka, 439 Elvitigala Mawatha, Colombo 5, Sri Lanka.

February/Février 1989

February 2-4: Expanding Dentistry's Horizons The Miami Winter Meeting sponsored by the East Coast Dental Society at the Hyatt Regency Miami, Florida. For more information, contact: East Coast Dental Society, 420 S. Dixie Highway, Suite 2E, Coral Gables, FL 33146 U.S.A. (305) 667-3647.

February 4: Centennial Ball of the Xi Psi Phi Dental Fraternity at the Royal York Hotel in Toronto. For more information, write: Dr. Don Ducasse, 4211 Yonge St., Suite 204, Willowdale, Ont M2P 2A9.

February 17-21: Annual Convention of the Jamaica Dental Association at Mallard's Beach Hotel, Ocho Rios, Jamaica. For information, contact: Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica WI.

March/Mars 1989

March 16-19: First Asian Congress on Oral and Maxillofacial Surgery organized by the Asian Association of Oral and Maxillofacial Surgeons in Manila, Philippines. Invited speakers include E. Steinhäuser (FDR), J. Langdon (UK), Bruce Epker (USA). For further details, write: Congress Secretariat, First Asian Congress on Oral and Maxillofacial Surgery, c/o Philippine Heart Center, Suite 401, East Avenue, Quezon City 1100, Philippines.

April/Avril 1989

April 10-15: 22nd National Dental Congress of the German Dental Association in conjunction with 111th Annual Meeting of the German Society of Dental, Oral and Orthodontic Medicine and the German Dental Industry Association's International Dental Show in Stuttgart, Germany. Contact: Stuttgarter Mess & Kongress GmbH, Am Kochenhof 16, D-7000 Stuttgart 1, West Germany.

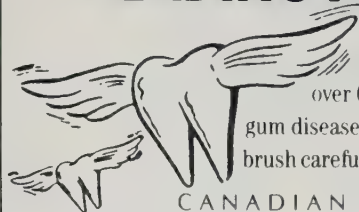
April 12-15: Bundesverband der Deutschen Zahnärzte in Killesberg/Stuttgart, Germany. Contact: Cornelia Hackenbruch, Bundesverband d. Deutschen Zahnärzte, Universitätsstr. 73, 5000 Köln 41, Germany.

April 26-30: 14th Asian Pacific Dental Congress at the Korea World Trade Center in Seoul, Korea. For further information, please contact: Secretariat of the 14th APDC, c/o Korean Dental Association, PO Box 41 Youngdeungpo, Seoul 150, Korea Tel: (02) 653-3351/3.

April 27-29: Journées dentaires internationales de Nice-Côte d'Azur in Nice France. For information, write: Dr. Jean-Louis Vidal-Revel, President, Journées dentaires internationales de Nice-Côte d'Azur, 37, av. Villermont, 06000 Nice, France.

April 27-30: Ontario Dental Association 122nd Annual Spring Meeting at the Metro Toronto Convention Centre. All members and groups of the dental profession are invited to prepare a clinic for presentation at the Spring Convention. Deadline for applications is November 30, 1988. For more information, contact: Diana Thorneycroft, ODA Headquarter, 234 St. George St, Toronto, Ont. M5R 2P1.

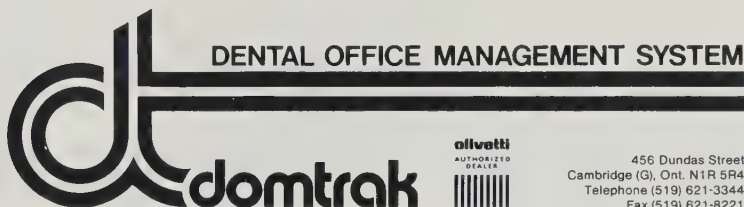
ARE YOUR PEARLY WHITES HEADING FOR THE PEARLY GATES?



Adult tooth loss is a serious problem. How serious? One-half of all Canadians over 60 are completely toothless! Major cause: gum disease. Don't let it happen to you. Floss and brush carefully. And see your dentist for checkups.

CANADIAN DENTAL ASSOCIATION

DENTAL HEALTH
LET'S KEEP IT
Good For Life



PROVEN PERFORMANCE

DOMTRAK - Our Dental Office Management System has been operational for 7 years. We are an experienced, and expanding company. Winner of Olivetti Dealer of the Year Award.

OLIVETTI - 2nd largest personal computer manufacturer in the world. State-of-the-art equipment in both speed and performance. Complete IBM compatibility.

LOGICAL SYSTEM

User friendly, uncluttered screens. Easy conversion from a one-write system.

FEATURES

Handles post-dated cheques, adds interest to statements if desired, failsafe recall, integrated word processor. Multi-terminal & multi-tasking systems available. **NEW** Scheduler - Most comprehensive available. Move week at a glance forward or back with one keystroke. Continual enhancements from customer feedback.

COMPETITIVELY PRICED

Our Single User Entry-Level System can be easily upgraded to a full multi-user, multi-tasking system at a future date.

olivetti

MASTERS OF BUSINESS ADMINISTRATION

Circle no. 10 on reader service card



University of Alberta
Edmonton

Assistant/Associate Professor Faculty of Dentistry

Applications are invited for a full-time tenure-stream position in the Division of Physiology and Pharmacology in the Department of Oral Biology. This position will be effective July 1, 1989. Applicants must hold a Ph.D. degree, have a minimum of two years postdoctoral experience and be prepared to teach in the department's undergraduate and graduate courses in Physiology and, to a more limited extent, in Pharmacology. Preference will be given to applicants with a dental degree and/or research experience related to: connective tissue; bone; salivation; endothelium; vascular smooth muscle; autonomic neuro-transmission; and adenosine. Rank and salary are commensurate with education and experience of an Assistant Professor (\$32,564 - \$46,700) or Associate Professor (\$40,810 - \$58,954). In accordance with Canadian Immigration requirements, this advertisement is addressed to Canadian citizens and permanent residents. Applicants should send a curriculum vitae, synopsis of research interests and the names of three referees no later than November 30, 1988 to:

Dr. D.M. Paton, Professor and Chairman
Department of Oral Biology
University of Alberta
Edmonton, Alberta T6G 2N8

The University of Alberta is committed to the principle of equity in employment.



DALHOUSIE UNIVERSITY FACULTY OF DENTISTRY Position Available in Biomaterials

The Department of Applied Oral Sciences requires a full-time faculty member in the Division of Dental Biomaterials Science, effective as soon as possible after the 31st October 1988. Applicants must have a PhD, preferably in pharmacy or pharmacology and a strong interest and experience in the area of biomaterials science, with knowledge of biocompatibility testing using cell culture and animal models. The individual should have a broad based background in biological science with a strong emphasis in the area of current research activity within the department which involves the synthesis of biomaterials, drug release and biocompatibility testing.

Dalhousie University has a policy of affirmative action and equal opportunities in hiring qualified women and male academic staff. In accordance with Canadian immigration requirements, the advertisement is directed in the first instance to Canadian citizens and permanent residents.

Applications should be submitted complete with curriculum vitae and references to:

Dr. Derek W. Jones, Professor and Head
Division of Dental Biomaterials Science
Department of Applied Oral Sciences
Dalhousie University
Halifax, Nova Scotia B3H 3J5

CDSPI METTEZ-NOUS A VOTRE SERVICE !

COMPÉTENCE • SERVICE

DÉTERMINATION

ACCESSIBILITÉ • FIABILITÉ

RÉGIME D'ASSURANCE DES DENTISTES DU CANADA

RÉGIME D'ÉPARGNE RETRAITE DE L'ADC

SYSTÈME DE GESTION DES CABINETS DENTAIRE

SÉMINAIRES DE PRÉPARATION A LA RETRAITE

APPELS TÉLÉPHONIQUE GRATUITS

SERVICE D'ANALYSE DES CONTRATS



CDSPI

A VOTRE SERVICE !

Appelez gratuitement pour de plus amples informations

1.800.268.54.18

Provinces de l'Ouest, provinces
atlantiques et région de l'Ontario
avec l'indicatif régional 807

1.800.268.34.11

Québec et Ontario sauf pour la
région avec l'indicatif régional 807

497.71.17

Toronto et environs

ANTI-PLAQUE **Viadent**[®]



Sanguinaria Extract
Anti-Plaque / Anti-Gingivitis Preparations

INDICATIONS: Adjunctive treatment for the maintenance of good oral hygiene, control of dental plaque and the reduction and inhibition of gingivitis.

CONTRAINDICATIONS: Other than hypersensitivity to Viadent or one of its components, there are no contraindications to the use of this product.

PRECAUTIONS: It is possible that Viadent Anti-Plaque preparations may interact chemically with other orally applied drugs, although no such drug interactions have been reported to date. Routine swallowing of the product is not recommended.

Staining of dental restorations does not appear to be a problem with Viadent preparations. In laboratory testing with the rinse, only one light-cured composite, Durafil-Kulzer, was slightly yellowed after immersion in the rinse for 24 hours.

Use of Viadent Anti-Plaque preparations is not recommended in pediatric oral health programs due to the alcohol content in the rinse and for the toothpaste, when caries is the principal dental disease and for which a fluoride product is indicated.

The safe use of Viadent Anti-Plaque preparations during human pregnancy and lactation has not been established. As with any drug, use during pregnancy or lactation requires that the expected therapeutic benefit of the drug be considered against the unknown risks to the mother, foetus or neonate.

DOSAGE AND ADMINISTRATION: Viadent Anti-Plaque Oral Rinse: Administer after brushing morning and evening. Rinse twice consecutively using 15 mL per rinse for 15 seconds each time.

Viadent Anti-Plaque Toothpaste: Administer as a ribbon of paste on a toothbrush morning and evening.

SUPPLIED: Viadent Anti-Plaque Oral Rinse: Bottles of 500 mL.
Viadent Anti-Plaque Toothpaste: Tubes of 50 mL, 100 mL.

TIMELINETM

ALL THE PROTECTION OF A GLASS IONOMER. 12 TIMES FASTER.



Introducing TIMELINE,TM the 30-second VLC base/ liner.

Now you can have all the benefits of a glass ionomer—and more—in a single-step VLC material.

It means there's no conditioning the dentin.

No mixing powder and liquid.

No worries about viscosity.

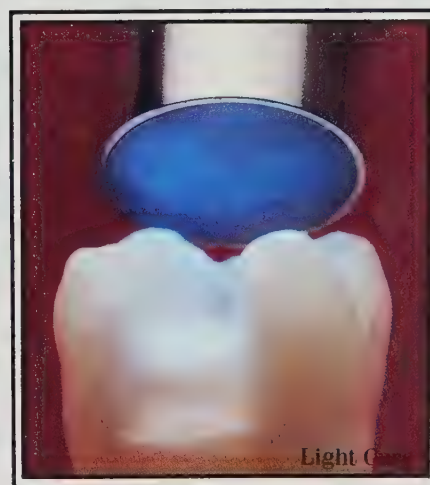
No problems with placement.

No waiting four to five minutes for set.

No etching of material to bond to composite.

So you save valuable time. Lots of time. And reduce the risk of error.

With TIMELINE, you just place... and light-cure. In about half a minute, you're ready for your restorative material.



You'll get a direct bond to both composite and dentin for a stronger restoration, less chance of postop sensitivity, consistent fluoride release . . . and significant time savings.

Light-cure confidence from Caulk®.

Order TIMELINE today. Get the phenomenal timesaving advantages of this light-cure base/liner—plus all the clinical and performance advantages you'd expect from Caulk.

Call your Caulk dealer or Caulk Canada at 1-800-263-1437

TIMELINE
CAULK® / Dentsply

ORABASE

Orabase

Oral protective paste



A unique paste for fast, temporary relief of:

- canker pain
 - sore spots from new dentures
 - toothbrush injuries
 - gingivitis
- and other traumatic lesions of the mouth

- protective emollient composed of gelatin, pectin and sodium carboxymethylcellulose in plastibase
- hygroscopic principle, taking up and retaining water
- non-medicated; no antibiotics, analgesics, anesthetics
- non-toxic, tasteless, odourless
- available in safety-sealed 7.5 g tubes

Not intended for use in presence of infection

To order this product, please consult your local pharmacist.



Quality products
for quality care

PAAB

Offices and Practices

YUKON—Whitehorse: Dental practice for sale. Affordable. Details on request. Contact: Dr. F. Almstrom (403) 667-4486 Office or (403) 667-6564 Home.

BRITISH COLUMBIA: Dental practice for sale in beautiful Williams Lake. Young, growing community with 90 per cent insurance coverage. Recreational opportunities abound. Respond to Dr. Siemens at (604) 398-8422.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

BRITISH COLUMBIA—Victoria: Established 10-year-old family practice for sale. Four fully-equipped operatories. High gross, high net, 500 plus new patients annually. Exceptional opportunity. Reply to: P.O. Box 7056, Depot 4, Victoria, B.C. V9B 4Z2.

BRITISH COLUMBIA—Victoria: Practice for sale. Exceptionally successful retail dental centre in Canada's ocean playground. Ideal for highly motivated, entrepreneurial dentist or dentists: 6 operatories, tastefully decorated, computerized, excellent patient base, 145 new patients per month. Contact: Dr. Donald Bays (604) 381-6433.

ALBERTA—Edmonton: A well-established, uptown group practice is seeking a dentist with an established

practice. The intent is to increase critical mass; thereby, reducing fixed overhead costs and increasing time off, while maintaining approximately the same net income. Please reply in confidence to CDA Box 2423.

ALBERTA—Red Deer: Very busy, established, three operator general practice for sale. Reasonably priced. Owner retiring. For information in confidence phone (403) 347-3123 (bus) or (403) 343-7130 (res).

ALBERTA—North-Central: Well-established general family practice for sale. Two of four operatories fully-equipped, plus an O.P. 5 Pan x-ray. Good patient flow, excellent lease, high annual gross. Terms negotiable. Business: (403) 837-8335. Home: (403) 837-2898.

ALBERTA—West Central: For sale. Long-established, active, solo family practice. Main street, ground floor location. Three operatories, one newly-equipped. Located in growing, progressive community within easy access to both major cities and the outstanding recreational opportunities in the area. Professional appraisal available. Owner retiring. Contact (403) 845-3133 office or (403) 845-3455 home.

SASKATCHEWAN: Very busy, family-oriented practice for sale in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

SOUTHWEST SASKATCHEWAN: Practice for Sale: "I QUIT!" — My practice has a gross you would not believe. Do you want to take my place? (306) 463-2600 or (306) 463-4403 Call today.

ONTARIO—Bracebridge: For Sale. General Practice — To an experienced, conscientious person. Over 1000 sq ft, three modern operatories and lab on ground floor. Owner wishes to work part-time as an associate or retire. Congenial and competent staff. Contact: Dr. Morley Crockford at (705) 645-4300 or Box 1919, Bracebridge, Ont. POB 1C0.

ONTARIO—Ottawa: Solo general practice for sale. Affordable. In professional building with reasonable rent. Compact office with two operatories. Good patient parking. Directly across from major mall. In practice 15 years. Now retiring. Present receptionist willing to stay. Contact: Dr. Edward McDermott (613) 722-4160 (office) (613) 722-5997 (home).

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

ONTARIO—Sudbury District: Seven-year-old family practice for sale. One operator, low overhead, high gross. Good as satellite. Incentive grant available. Phone (705) 437-3821.

NOVA SCOTIA: Exceptional Opportunity. Very busy, modern practice available in beautiful town on South Shore of Nova Scotia. Well-established, family-oriented, excellent income. For details contact: 6452 Vienna St, Halifax, NS B3L 1S8 (902) 454-9027 or 455-3748.

NOVA SCOTIA—Halifax: Established downtown general practice for sale, located in Purdy's Wharf. Sale includes share of modern equipment, sundries, and term lease of office space. Practice includes a large recall clientele (mostly adult). Suitable for an experienced operator or two graduates. Apply to Box CDA 2327 or in confidence to Dr. Stewart Keddy, 43 Westridge Dr., Halifax B3M 3K3.

NOVA SCOTIA—Lunenburg: Practice for sale in modern medical-dental centre. Includes two fully-equipped operatories and cost-shared facilities such as spacious reception, hygiene, lab, panoramic x-ray facilities. Ideally located next to hospital and close to schools, shopping area and recreation facilities including swimming, golfing, boating, tennis, etc. Just one hour from Halifax. Please reply to: Robert Murray, DDS, P.O. Box 370, Lunenburg, N.S. B0J 2C0 or phone (902) 634-8880 (O) or 624-9966 (H).

Associateships Available

ALBERTA: Associate Position available immediately for busy, rural practice. The latest in new equipment throughout. Possible partnership available after one year. Town of 7500 located 2 hours west of Edmonton. Please reply to CDA Box 2416.

ALBERTA: Pedodontist to associate with opportunity to purchase well-established twenty-five year old practice. Three operatories, pan, rent — \$14.95/sq. ft. × 1193 sq. ft. Reasonable terms to be negotiated to suit purchaser. Call collect (bus) (403) 262-7000.

SASKATCHEWAN—Regina: Associate required for established family practice. Generous percentage. Call or write Dr. R. Katz, 351 Albert St, Regina, Sask. S4R 2N6. Tel: (306) 924-1494.

MANITOBA—Winnipeg: Well-established general family practice requires a capable, conscientious and ambitious associate. Excellent opportunity for recent graduate or experienced dentist. Very good remuneration and easy working hours. Excellent full staff with years of experience. A large recall clientele (mostly adults). Position available immediately. For interview call (204) 783-6831.

ONTARIO—Brampton: Unique opportunity for full-time associateship leading to partnership. Newly-opened dental centre in a fast growing area of north Brampton. Phone (416) 840-0000. Ask for Marlene.

ONTARIO—London: Full-time Associate required for very busy, established general practice. Partnership opportunity available. Call Barbara at (519) 455-2551.

ONTARIO—Parkhill: ASSOCIATE REQUIRED. Preventive-oriented group practice environment requires an additional dentist. Future partnership possible. Located in southwest London, Ontario. One year old plaza. Excellent opportunity. Contact Dr. J. Rick Merritt at (519) 473-0220.

ONTARIO—St. Catharines: Associate required for modern store-front location. Seeking dynamic, team-oriented individual to join established, highly preventiva-

tive, general practice with motivated, congenial staff and buy-in potential. In scenic Niagara, minutes from excellent golf and sailing facilities, 20 minutes to US border and 1 1/2 hours from excellent skiing. Reply in writing to CDA Box 2427.

U.S.A.—New York: WANTED. Pedodontic Associate for exclusive pedodontic group with elite clientele. Modern comprehensive pedodontic practice in upstate New York. Please reply in confidence to CDA Box 2424.

Opportunities Available

BRITISH COLUMBIA: Hygienist needed in busy Dental clinic in Williams Lake, BC. Phone (604) 398-8422.

BRITISH COLUMBIA—Kamloops: Established practice offers opportunity for full-time, long-term position with buy-in potential. All phases of dentistry. Volitional family practice. Call (604) 579-5788 (evenings).

BRITISH COLUMBIA—Kootenays: High daily minimum gross in busy solo family practice established 23 years. Excellent staff and recall system, providing all phases of dentistry. Large patient base and steady growth of new patients assures continued success. This city is growing with steady employment and 94 percent dental insurance. I will associate for an introductory period. Purchase for 50 percent of annual gross includes all equipment, supplies, etc. Suitable for experienced dentist or two graduates. (604) 442-5837.

BRITISH COLUMBIA—Prince George: We are inviting enthusiastic, quality-conscious dentists (experienced dentists preferred, new graduate considered) to consider a unique opportunity in a non-traditional environment. We are a large progressive dental group located in Prince George, B.C.'s 2nd largest city. Our schedule is designed to attract local and out of province candidates. We welcome your telephone (collect) inquiries to: Lakewood Dental Group, c/o Elaine David, Mon-Fri (daytime) (604) 562-5551, Evenings or weekends (604) 562-1927.

ALBERTA: Golden Opportunity. No investment. Take over a good practice. What an offer! I started up a satellite practice two hours away where my

brother lives. I am so busy I must devote to one. I can work with someone as they take over and work into practice. Hopefully the right person will take over and purchase one practice if desired. Call (403) 553-3359 Monday-Wednesday or (403) 529-2626 Thursday-Saturday.

ALBERTA: Partner/associate position available due to medical reasons. Town of 5000, two hours east of Edmonton. General practice with emphasis on removable prosthetics. Experience preferred. Call collect (403) 842-4242 days 8:00-4:00 Hauck, Hauck, Tovell Dental Surgeons.

ALBERTA—Edmonton: A well-established, downtown group practice has a locum available for September, October and November 1988. Please reply in confidence to CDA Box 2422.

ONTARIO: Oral & Maxillofacial surgeon associate required for full-scope practice. Knowledge of TMJ, implants, orthognathics and out-patient anesthesia necessary. Reply to CDA Box 2425.

ONTARIO—North Toronto: Position available immediately for a Paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost sharing arrangement. Please reply to CDA Box 2426.

ONTARIO—Toronto: Periodontist required part-time to join with a growing Toronto group general practice. Recently renovated. Stressing prevention, good quality and caring. Congenial and competent staff. Reply to CDA Box 2412.

QUÉBEC—Montréal: Excellent career opportunity for two recent graduates to join a people oriented practice. Must be ambitious, multidisciplined and bilingual. Please contact: (514) 731-0921 or 731-1448.

Opportunities Wanted

QUÉBEC—Montréal: Young, enterprising dentist looking to associate with well-established Montréal or surrounding area practice. Eventual partnership or purchase ideal. Call: (514) 933-4642.

Canadian Dental Association

CDA Library/Resource Centre

As a service to all members, both dentists and students, and affiliated dental groups the CDA Library/Resource Centre is presently offering the following services. Please note, there are some changes which will involve minimal costs to users, effective **September 1, 1988**:

- ☐ **MEDLINE** literature searches: this computerized information retrieval system provides access to over 3,000 medical and dental journals and produces instant bibliographies of varying length and depth of topic coverage. The Association is accepting collect calls for this service from all members. This is free to members and a minimum charge of \$10.00 to non-members.
- ☐ **SDI**: this is a monthly current awareness bibliography. The requester's original search in MEDLINE is stored in the computer and updates are then sent automatically twelve times a year. This is free to members and \$30.00 a year to non-members.
- ☐ **Copies of contents pages** of the most current dental journals. There is a monthly charge of \$5.00 to non-members for this service and is free to members.
- ☐ **Photocopies** of journal articles. For members there is a flat fee of \$5.00 for up to ten articles; and 10 cents per page thereafter. For non-members there is a charge of \$5.00 per request plus 10 cents per page (plus the cost of articles obtained from other libraries).
- ☐ **Package Libraries**: these are selected articles on topics of interest to the dental community and advertised each month in the Journal. One copy of each article listed is provided in the package at a total cost of \$5.00 for members and \$10.00 for non-members.
- ☐ **General inquiries** on dentally related topics: assistance is provided free of charge.

The Library is open from Monday to Friday
between 8:30 a.m. and 4:30 p.m.

For further information please contact Martha Vaughan, Librarian, at the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6, (613) 523-1770, extension 223.

THE SYDNEY WOOD BRADLEY MEMORIAL LIBRARY
OF THE CANADIAN DENTAL ASSOCIATION

THE DENTAL EMERGENCY SERVICE 1650 YONGE STREET IN TORONTO

This facility, operating 16 hours every day and treating only emergencies, has been in operation in Toronto since 1978. It has an established reputation of service to the public and to the profession. The owners, recognizing that the Service would benefit from more direct attention than they are able to give it, will entertain offers to purchase from dentists only.

For an outline prospectus, please write

Drs H. MacKay and A. Schmitt
39 Pleasant Boulevard
Toronto, Ontario M5T 1K2

Advertisers' Index

Ash Temple Limited	670
CDSPI	673, 681, 687, 696
The L.D. Caulk Co. of Canada	697
Core-Vent Corporation	674
Dalhousie University	696
Den-Mat Corporation	OBC
Dentsply Canada Ltd.	IBC
Domtrak	695
Health Sciences Centre	691
Hoechst Canada Inc.	654, 655, 660, 678, 682
F.W. Horner Inc.	668, 669, 696
McNeil Consumer Products Company	650, 659
MDICL, Inc.	686
Myo-tronics, Inc.	667, 679
Plax	688
Premier Dental (Canada) Inc.	679
Procter and Gamble, Inc.	IFC
Squibb Canada, Inc.	698
University of Alberta	696
University of Sydney Australia	679
University of Toronto	673
Warner Lambert Canada, Inc.	657

Doctor . . . A Moment of Your Time

Reach every dentist and dental student in Canada

Over 14,000 dentists and 1,600 dental students read the Journal of the Canadian Dental Association every month. The Journal has a section exclusively for you — the Marketplace. Whether you are buying a practice, selling a practice, or looking for an associate, we are here to give you the best exposure possible.

Dentists who do not get the response they anticipated after running their paid advertisement twice will receive one placement of their ad at no charge.

CLASSIFIED ADVERTISEMENTS

The classified advertising department of the Journal of the Canadian Dental Association is published as a service to the dental profession. Rates are minimal. Therefore, even on display classified advertisements, no agency commission is payable.

CLASSIFIED ADVERTISING RATES

50 words or less, per ad (minimum) \$30.00 plus 50¢ for each additional word. Box number \$5 per insertion. All ads must be prepaid. (Cheque or money order). NO AGENCY COMMISSION PAYABLE. Closing date is first day of month preceding month of issue. No cancellation or copy changes after closing date. Ads not accepted over telephone. The Journal reserves the right to reject or edit advertisements that do not conform to Journal requirements.

DISPLAY CLASSIFIED RATES

Half page and quarter page ads only. Commercial advertisers do not qualify. One time rate only: half page vertical or horizontal \$500.00, quarter page \$315.00. Payable in Canadian funds.

Replies to CDA box numbers should indicate box number on envelope. Names and addresses of box number advertisers will not be revealed.

The Journal of the Canadian Dental Association neither investigates the offers made in these advertisements nor assumes any responsibility for them.

Write: Journal, Classified Advertising Dept.
Attention: Jennifer McClinton
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID
AMOUNT OF CHEQUE ENCLOSED: _____

There's a new dental instrument that can help all your others stay busier

**New with
DentalVision™**
The Probe Camera; 1.27 mm
diameter camera head mag-
nifies 200X, the inside of a
root canal, subgingival
calculus, and cavity
preparations.

**Introducing DentalVision™,
the system that opens your patients' eyes
to the need for treatment...**

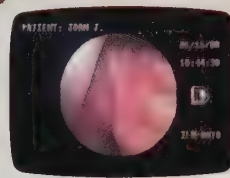
DentalVision gives patients a sharp image of their own dental pathology, so they are less likely to delay necessary treatment. The end result: increased productivity for your practice.

**...creates an exciting image that
can encourage new visits**

DentalVision offers an enlightening new view of dental treatment. It not only helps differentiate your practice from others, but also encourages word-of-mouth referrals from satisfied patients that results in practice growth.

**...and gives you a bigger and brighter
view to work with**

DentalVision gives you an extraordinary view—in diagnosis and during procedures. The system's handpiece is smaller than a dental mirror, and lets you view the most remote areas of the mouth from any angle. Digitized images with exquisite resolution can be stored in living color at the push of a button.



Introducing **DentalVision™**

A whole new way of looking at dentistry.

Contact your local Dentsply Dealer for a personalized demonstration.



Equipment Division
Dentsply

This is more than a broken porcelain laminate.



It's more than just lost time never to be regained. It's a bad day, and it's definitely not beneficial to your patients' perception of you. Cerinate® porcelain laminates, inlays, onlays, and all porcelain bridges are made of a high strength, reinforced porcelain that is manufactured exclusively by and for Den-Mat, and only available at a Cerinate® Porcelain Laboratory.

Strength and durability are enhanced when bonded with ADA Certified UltraBond®. Don't experience a failed porcelain restoration. Use a Cerinate® Laboratory and be assured of a rewarding day.

For more information and your pre-paid laboratory box, call: 800/4 DEN-MAT.

NOW OPEN!!!
Cerinate® of Canada
Andreou Dental Laboratories
1-800-668-0173

Cerinate

October
Octobre
1988
Vol. 54
No. 10

JOURNAL

Canadian
Dental
Association
L'Association
Dentaire
Canadienne

If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER À
L'EXPÉDITEUR
Port payé



OCTOBER IS CFDE MONTH
OCTOBRE: LE MOIS DU FCED

▲ Community
Dentistry

▲ Santé dentaire
communautaire

TWO RELIABLE ASSISTANTS



Your fight for improved dental health is our fight too. Crest was the first cavity fighting toothpaste to put fluoride into demineralized areas, and was also the first with patient support programmes. Through its Preventive Dentistry message, Crest has always supported your efforts to inform your patients about better dental care.

The message continues today with Crest's tartar fighting formula. With the same proven anticaries system as the regular Crest formula, Crest's calculus fighter contains nonabrasive pyrophosphate which chemically interferes with supragingival calculus formation.

Crest's assistance is ongoing, sharing dental research findings and offering helpful patient information. Now more than ever you can trust Crest in your practice and recommend it with confidence.

CREST. DENTAL ASSISTANCE YOU CAN TRUST.



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

Canadian Dental Association
L'Association Dentaire Canadienne

October 1988

Vol. 54 No. 10

Features

- | | | |
|---|------------|---|
| Chemotherapeutic products | 725 | For the control of supragingival dental plaque and gingivitis
F. Michael Eggert, DDS, MSc,
Dip. Perio. PhD |
| Pit and fissure sealants: | 728 | One more time
Gary S. Jackson, DDS, DDPH |
| The case for Fluoridation: | 731 | A comparison between Toronto and Montreal
A. John Lee, DDS, MPH
Fred Goettler, MASc, MSc |
| Birthplace of "Painless Parker" — revisited | 737 | Peter Pronych, BA, DDS, MS |
| A review of differential diagnosis | 743 | Of dental fluorosis and non fluoride enamel defects
Oliver O. Osuji, BDS, Dip. Paedo.
MSc et al. |
| Nursing caries in Inuit children of the Keewatin | 751 | Ronald J. Albert, DMD et al. |
| Comparative effects of FMR programs | 761 | In fluoridated and unfluoridated communities
Jean-M. Brodeur, PhD et al. |



October is CFDE Month
Octobre: Le mois du FCED

PHOTO: C. METCALFE

Departments

- | | |
|-----|--------------------------|
| 709 | Editorial |
| 710 | President's Column |
| 711 | Commentary
CFDE Month |
| 712 | News Update |
| 715 | CDA RSP |
| 716 | Briefly |
| 719 | Books Reviews |
| 721 | Resource Centre |
| 722 | Letters |
| 723 | Obituaries |
| 767 | Announcements |
| 772 | Marketplace |
| 774 | Advertiser's Index |

PUBLICATIONS COMMITTEE

Chairman
Dr. John Hardie

Members
Dr. P.C. Desautels
Dr. H. Jack Stockton
A. Jardine Neilson

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Associate Editor
Clarence Metcalfe

Scientific Editor (English)
Dr. Robert Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

Advertising Representative
Ms. Marg Churchill
Suite 105, 4953 Dundas St. W.
Toronto, Ont. M9A 1B6

Telephone (416) 239-1233 FAX (416) 239-8220

Classified Advertising and Circulation Coordinator
Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics
Dr. Aaron Fenton

Oral Pathology
Dr. James Main

Orthodontics
Dr. Alan Lowe

Public Health
Dr. Donald Lewis

Endodontics
Dr. Barry Korzen

Paedodontics
Dr. Howard Stein

Oral Surgery
Dr. Huan Pham

Forensic Dentistry
Dr. Robert Dorion

Periodontics
Dr. Harvey Freedman

Nutrition
Nina Burgess

Canadian Dental Hygienists Association
Carol Worobey

Canadian Dental Assistants Association
Elaine Wesley

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada — \$42; United States — \$44; all other — \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the Journal

ISSN0709 8936

Canadian Dental Association

EXECUTIVE COUNCIL

President
Dr. J.W. Niedermayer
Regina, Saskatchewan

Past-President
Dr. R.J. Markey
Vancouver, B.C.

President-Elect
Dr. K.L. Roach
Pembroke, Ontario

Dr. D.E. MacFarlane
Vancouver, B.C.

Dr. Ray Wenn
Charlottetown, P.E.I.

Dr. L.S. Allen
Winnipeg, Man.

Dr. G. Dubé
Lachute, Quebec

Dr. B. Sigfstead
Edmonton, Alta.

Dr. Bernard Dolansky
Ottawa, Ontario

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini
Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws
Dr. G.H. Peacock
Saskatoon, Saskatchewan

Dental Materials & Devices
Dr. R.Y. Barolet
Montréal, Québec

Education and Accreditation
Dr. A. Schwartz
Winnipeg, Manitoba

Ethics
Dr. R. Thordarson
Vancouver, B.C.

Hospital and Institutional Services
Dr. E.L. MacInnis
Halifax, N.S.

Information Services
Dr. P. O'Brien
St. John's, Nfld.

Insurance and Investment
Dr. J. Durran
Hamilton, Ontario

Nominations
Dr. J.R. Robertson
Summerside, P.E.I.

Student Affairs
Miss M. Shildkraut
Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Council Secretary
Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation
Brian Henderson
Education, Accreditation, Professional Councils

Coordinator of Accreditation
Lorraine Emmerson
Surveys, graduate, undergraduate,
auxiliary programs, hospital services

Associate Director, Professional Councils
Janice Forsythe
Third Party Dental Plans, Health Care,
Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration
Joel R. Neal
Administration, finances, information systems,
membership

Business Manager
Shelagh Dunlop

Accountant
Joan Wilkes

Membership Secretary
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck
Dental Aptitude Testing Program, Journal,
Dental Awareness Program, Student Affairs,
Resource Centre, MEDLINE, Conferences,
Conventions, media relations,
public information.

Information officer
Kimberley Allen-McGill

DAT Coordinator
Win Mobley

Librarian/MEDLINE
Martha Vaughan

Editor
Dr. P. Ralph Crawford

Problem or Opportunity?

The Journal is pleased to have Dr. Gary Jackson contribute this month's Editorial. Dr. Jackson is the fluoridation officer for the Canadian Dental Association. Formerly the Director of Patient Care at Dalhousie University's Faculty of Dentistry, he was recently appointed Director of Dental Public Health for the Hamilton-Wentworth Regional Health Department, and is based in Hamilton, Ontario.

Organized dentistry in Canada and throughout North America has over the years made significant contributions to the health and quality of life of Canadians everywhere. Without our participation in and advocacy for water fluoridation, our searching and continually striving for more effective preventive strategies and our commitment to delivering dental treatment services to remote and otherwise underserved areas, we would not have witnessed the dramatic drop in dental caries. Nor would we see the steady decline in the percentage of edentulous individuals in later life.

Before we become too complacent about our contributions it should be remembered that success does not come without its attendant problems/difficulties. With the current improvement in oral health status and the decline in dental caries have come concerns about a dental manpower (dentist) oversupply, the need to endorse our support for water fluoridation as well as an erosion of the support for the contribution which public health dentistry can make to organized dentistry.

The recent decline in dental caries in Canada and elsewhere has not been received with the same support and sense of accomplishment by the entire profession. While there are those who loudly applaud this achievement there are those who are becoming increasingly concerned about a potential lack of business due to this decline and an increasing dental (dentist) manpower oversupply. There are two ways of looking at and trying to solve any problem. One is to look at it as a problem which needs to be solved — the other is to look at it as an opportunity to make even greater advances and contributions.

If we choose to treat it as a problem which requires a solution then the concern over an oversupply of dentists may be justified. If however, we choose to view it as an opportunity, then perhaps for the first time in our history, dentistry is in a position to address not just the demand for care but the need. If we are to address this need we must be prepared to view our successes differently. Is the fact that 50-60 per cent of all Canadians visit a dentist annually to be applauded solely because it represents a milestone in access to care, or viewed as an opportunity? It can be an opportunity to develop strategies for delivering dental services and increasing the awareness of the forgotten people, the 40-60 per cent of Canadians who do not now frequent the dentist annually. Is the fact that 50-60 per cent visit the dentist annually not in itself an opportunity? — an opportunity because it is estimated that only 30-40 per cent of all individuals who visit a dentist receive comprehensive care and because there is less caries the dental profession finds itself in a position to provide comprehensive care to more and more patients.

In addition, is the recent caries decline not also an opportunity? — an opportunity to address the needs of those Canadians most at risk. There are the economic disadvantages, the 20 per cent of the children who have 80 per cent of the decay, the physically, mentally and psycho-socially impaired and the frail and dependent elderly. Public Health Dentistry has traditionally focused on these individuals and until recently has not had the opportunity or resources to deal adequately with the situation. We now have the opportunity to work toward a more shared responsibility.

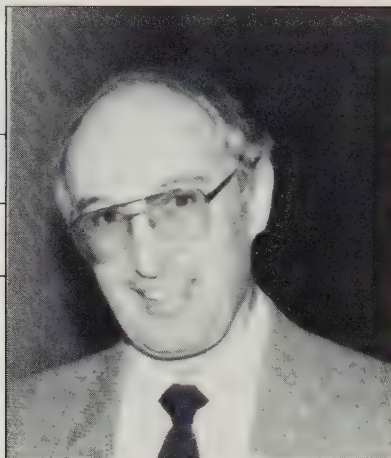
The changing oral dental disease trends present us with a further opportunity to once again endorse the importance and effectiveness of water fluoridation. We can now show the true effects of water fluoridation in reducing the incidence and prevalence of caries. Although it is true there has been a decrease in the prevalence and incidence of caries in unfluoridated areas the DMFT in unfluoridated areas is still 40-50 per cent higher than fluoridated areas. To this we can now show that fluoride protects not only children but adults of all ages and that as more and more Canadians retain some or most of their own teeth for a lifetime the effects of water fluoridation will be even more profound. Armed with this knowledge we should be in a position to more convincingly advocate for water fluoridation in the as yet unfluoridated areas.

There is another opportunity open to us which might not have been possible had it not been for the recent caries decline. That opportunity is to begin to develop and deliver dental care to our elders, particularly the frail and dependent elderly. Until quite recently elderly individuals were almost completely forgotten by the health care system, dentistry included. As a result of both the caries decline in the younger age group and the population explosion at the other end of our age spectrum increasing emphasis is being given to the health needs of the elderly. With this comes the opportunity for dentistry to become involved and become a leader in planning for dental care programs and dental treatment service delivery. Ours has been a history of success.

The opportunities for change and further growth and development are here. All we have to do is seize it!

Gary Jackson, DDS, DDPH
Hamilton, Ont.

President's Column



CDA Membership Why belong? What's in it for me?

I frequently hear the complaint from some of my colleagues: "Why should we belong to the Canadian Dental Association? What are the benefits of paying out this money each year in conjunction with our licence fees? It seems a lot to pay for our national organization."

In a country as vast as Canada, professionals — dentists, lawyers, physicians, accountants — scattered in far-flung corners of this nation — must have a national body that speaks for them on matters of major concern. These matters may often have a great impact on the everyday practice of dentistry.

The trust and integrity the Canadian Dental Association has earned among the Canadian public can be reflected in your own practice.

From the setting of national standards, to accreditation of each dental faculty in Canada, where our dental lives begin, to insurance, to taxation concerns, to public awareness campaigns and dental health promotion — your national association does it all! It works on your behalf, with your interests in mind.

To accomplish all of this, your association has a battery of individuals from every province in Canada working on all aspects of Dentistry: Infection control, fluoridation, dental care for the elderly, consumer products recognition — to mention but a few of the topics handled on an ongoing basis.

Your Executive Council attempts to meet the problems facing the dental profession head-on, and has, through strategic planning, looked to the future as it affects this ever-changing health profession.

To meet these challenges and come up with effective solutions, there must be a financial base — membership dollars. The resource people at our headquarters in Ottawa are working on all these CDA projects on a full-time basis. However, their time and resources are limited. They could use more to ensure these projects are most effectively carried out, on our behalf.

Let me assure those of you who are already members of the CDA that your membership dollars are being used to the best possible advantage and are being stretched to the limit.

To those of you who are not yet members, I appeal to you to get on board to support your national association. In so doing, you will strengthen the national voice of Dentistry.

Success is a mutual affair.

*Jack W. Niedermayer, BA, DDS
President of the Canadian Dental Association*



October is CFDE Month

CFDE Elects New Chairman

After nine years of dedicated service to the Canadian Fund for Dental Education, Dr. J. Fred Reid, of Vancouver, British Columbia, has retired from the Board. Although I know I have a tough act to follow, I will try to bring as much charm, wit, and especially knowledge and guidance to the Fund as Fred has.

I hope that I will be able to draw upon my experience as a Past-President of the College of Dental Surgeons of British Columbia, a member of both the CDA Board of Governors and the Executive Council, as well as other positions in organized dentistry, to lead the Fund during the next few years.

As of October 1, 1988, we will have four new members on the Board of Trustees. They are Dr. D. Greg Baird, of Halifax; Dr. Donald O'Connor, of Ottawa; Dr. William Sharun, of Edmonton; and Dr. Arnold Steinbart, of Prince George.

I look forward to the fresh, new ideas these individuals will bring to the Board, but I would be remiss if I did not thank Dr. Sidney Golden, of Toronto; Dr. Gerald Barrett, of Charlottetown; and Dr. Stuart Foster, of Calgary, for the wisdom they have brought to the Fund over the past several years. Their hard work and dedication to the Fund's activities have helped put CFDE in the sound financial position it is in today.

But, please, don't let me mislead you. Although CFDE is not in debt, it could fund many more worthwhile projects, or even contribute more to its current roster of regular programs, if only dentists would give more to the Fund. I personally find it embarrassing to see the average of all contributions from dentists in Canada.

This is YOUR fund, by virtue of your being involved in the dental profession. CFDE grants funds to research which improves your profession, and to continuing education seminars for those dentists eager to keep up with this rapidly moving profession. Your dollars help us to accomplish this monumental task. But the burden cannot rest on the shoulders of so few. The dental health of Canadians is in your hands, as is the future of dentistry.

You have a Board of Trustees deciding, on your behalf, what areas of research should be emphasized and which individuals warrant fellowships to educate you and your future colleagues, among many other projects. Use your regional Trustees to bring your ideas to CFDE, or contact me directly. CFDE needs a new approach to increase its support from dentists. I urge you to either sit down now and write a cheque to the Fund, or send me a letter explaining what CFDE could do to convince you to donate. I cannot stress enough that this is YOUR Fund!

October is CFDE Month. Please lend us your support — for the betterment of all Canadians. △

*Ted Ramage, DDS
Chairman
CFDE Board of Trustees*

IN VANCOUVER

CDA Taxation Seminar Draws Capacity Crowd

Dentists, their spouses and staff filled the lecture room at the Four Seasons Vancouver for the CDA Taxation Seminar held recently. Registration totalled 120, with participants from a wide range of locales in B.C. including Terrace, Kamloops and Victoria. The seminar also attracted participants from Alberta and Ontario.

Chaired by Dr. Robert N. Hicks, CDA Taxation Committee Chairman, the seminar featured presenters from the firm of Walsh-King and Thorsteinsson, Mitchell, Little, O'Keefe & Davidson, experts in the fields of tax accounting and tax law.

Mr. Ron Walsh, of the firm Walsh-King, addressed topics including Interest Expense deductibility, Capital Gains, Taxable Dividends, Income Splitting and Personal Financial Planning. The information was geared specifically to the dental practitioner, with detailed examples of

applicability.

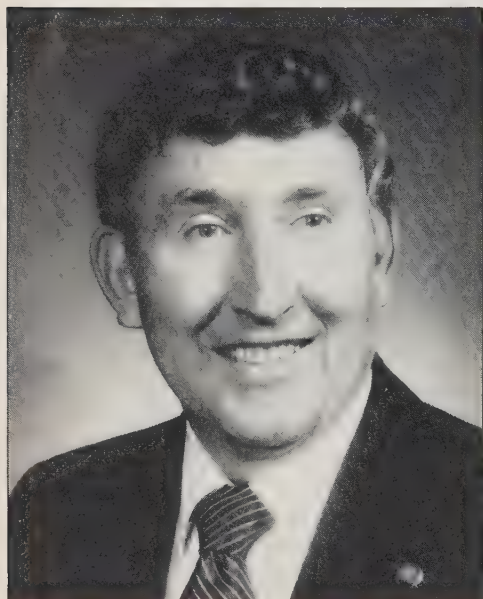
Mr. Barrie Davidson and Mr. David Thompson of Thorsteinsson, Mitchell, Little, O'Keefe & Davidson presented an overview of 1988 Income Tax Reform legislation and regulations, detailing the impact of specific issues affecting dental practitioners. Mr. Thompson reviewed Corporate Tax Planning and the basic rules, tax implications and advantages applicable to Professional Management Companies, Personal Service Corporations and Professional Incorporation. The five essential steps for professional incorporation in B.C. were presented with details of procedure, consent, and income tax advantages through deferral, income splitting etc. Potential disadvantages relating to incorporation including attribution rules, complexity, and social service tax were examined.

Participants learned the good news and bad news in the area of Tax Shelters, including Flow Through Shares, Scientific Research, Real Estate and Oil and Gas Mining.

An update on Sales Tax Reform, the implications for dentistry and CDA's discussions with the Department of Finance were presented by Dr. Hicks. Current Information on this issue was published in the June edition of the Journal.

CDA Taxation Seminars in 1988 were planned for Montreal in October and Moncton in December. Specific dates and registration information will be mailed to dentists in Québec and the Atlantic provinces. If you are outside of these areas and are interested in attending, please call Sandra Deziel at CDA, (613) 523-1770, and your name will be included in our distribution. △

California dentist named President of AGD



John C. Brown, DDS

CHICAGO — John C. Brown, DDS, of Claremont, California, was named president of the Academy of General Dentistry during AGD's Annual Meeting, Reaching New Heights, July 15-20 in Chicago.

The Academy of General Dentistry is the second largest dental organization in North America and is composed of 30,000 dentists in the U.S. and Canada dedicated to continued education in general practice.

Dr. Brown automatically became AGD President after holding the offices of vice president, 1986-87, and president-elect, 1987-88. He has held numerous other positions in the Academy, including treasurer, Region 13 National Director and Region 13 vice president. He attained Mastership status in 1982.

Dr. Brown has also held offices in the Southern California AGD including presi-

dent, president-elect, vice president and treasurer. He has been active in the California Dental Association and the Tri-County Dental Society. He is co-director of the Orthognathic Seminar at the University of Southern California, and maintains a private practice with his son, Douglas, in Claremont, California.

Dr. Brown graduated from the University of Southern California School of Dentistry at Los Angeles in 1961.

Along with Dr. Brown's professional and community affiliations, he is also the recipient of several academic and professional awards including the Daniel Cave Memorial Award for excellence in prosthesis, the Dentist of the Year Award from the Southern California AGD, Pierre Fauchard Academy, and fellowship in the International College of Dentists and the American College of Dentists. △

62-year practice comes to an end

Probably not a record but certainly worthy of recognition was the announced retirement of Dr. Thomas "Tom" McCarthy of Winnipeg. Graduating from the University of Toronto in 1926, Dr. McCarthy immediately returned to his home province to open a one chair practice. On July 15th he ended his long career busily tending four chairs.

Another remarkable milestone for this enduring dentist was that the entire 62 year practice was in one building, a few blocks from Winnipeg's famous corner, Portage and Main.

An added achievement that surely is one of a kind, was the 50 years of volunteer dental services provided at the Home of the Good Shepherd. Dr. McCarthy graciously provided dental treatment at the Home, for the thousands of girls who had run afoul of the law, and for the Order of nuns in charge. Special recognition of this unique achievement was bestowed upon Dr. McCarthy by Pope Paul VI in 1976.

Reminiscing upon the three generations of patients he has treated in 62 years, Dr. McCarthy, now 85 years old, indicated he had no set plans for retirement except a short holiday to United States. "When I am back", he said, "I might just start another practice". Winnipeg's dental community probably wouldn't be a bit surprised! The very least will be Tom's familiar presence — at least a couple of times a week — on the golf links in summer and the curling rink in winter. △

Nova Scotia winners in NDHM Poster Contest



Dr. Stephan Brayton, President of the Nova Scotia Dental Association, made a presentation of prizes to two winners in the 1988 National Dental Health Month Poster Contest. They were six-year-old Sandra Butt, (right) of Windsor Junction and 12-year-old Angela Gouthro of Bras d'Or. The presentation took place on July 14 in Halifax.

Manitoba's Faculty of Dentistry receives \$4.5 million

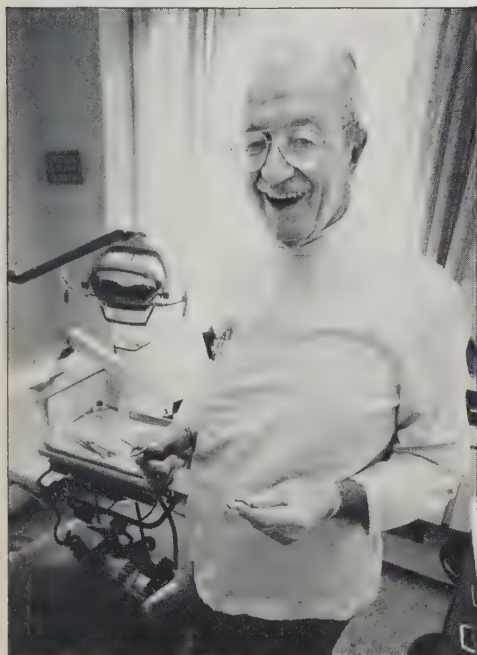
At a specially called news conference on July 19th, the Manitoba Education Minister, Len Derkach announced that his government would provide \$3 million to fund renovation of the Faculty of Dentistry building. The President of the University of Manitoba, Dr. Arnold Naimark, said the balance of \$1.5 million would come from the Dental Faculty's share of the current \$42 million Development Fund drive.

In June 1986, the Faculty's accreditation was dropped to a conditional from a full status by the CDA's Council of Education and Accreditation, citing certain deficiencies in staffing and programs, but referencing particularly the less than modern clinical facilities. Dean Arthur Schwartz, in accepting the multi-million dollar influx of funds, said that over the past two years the Faculty's curriculum has been completely updated and addi-

tional staff members added bringing the total full time academic complement to 53. The Dean said, "I have no doubt that accreditation would have been lost without the provision for renovations."

The U. of M. Faculty of Dentistry when founded in 1958, was the first new dental faculty in Canada in over 40 years, but little has been done since then in upgrading facilities. Construction to replace and refurbish the school's various laboratories and clinics will begin immediately with a completion target of three years.

Originally designed to graduate 32 dentists annually, the Faculty in the past few years has been admitting only 25 students. It also has a two year Dental Hygiene Diploma course and graduate programs in Oral Biology, Periodontics, Oral and Maxillary Surgery and Orthodontics. △



Winnipeg Free Press photo by Wayne Glowacki

Dr. McCarthy in his Winnipeg operatory

Officials seek identity of human remains

The Journal has been asked to publish the following summary report describing human remains discovered in the Province of Quebec in the hope that the information may eventually lead to identification of the unknown individual.

- On August 27, 1982, skeletal remains were found near a wooded area adjacent to the "Belle Rivière" river at Metabetchouan, Quebec, about 50 meters from highway 170.
- The various bones suggest that the skeleton was that of a male Caucasoid.
- The peculiarities of the dentition suggest that they may be of use in the identification of the individual.
- The victim had 30 permanent teeth at the time of death.
- One tooth was lost post mortem (41).
- Tooth 26 was extracted at an early age.
- Of special interest are the three dental anomalies namely:
 - Three supernumerary premolars located between teeth 44 and 45, 33 and 34 and between 23 and 24.
- There were six fillings on the remaining teeth:
 - 5 amalgams and
 - 1 esthetic restoration (non-radiopaque) on the distal of tooth 11.
- There is a slight deviation of the nasal bones towards the left.
- Type class I occlusion.
- The dental mid-line is slightly displaced to the right.
- There is an old fracture the disto-incisal line angle tooth 11.
- The occlusal wear on posterior teeth is average.
- The pulp chambers and canals are quite large.
- Race: Caucasoid.
- Sex: male type.
- Age: 27 (+ - 3 years) at the time of death.
- The victim died between 1974 and 1982.
- Any information pertaining to the identity of the cadaver may be forwarded by referencing case number LML 10965-82 to:

Dr. Robert B.J. Dorion
 Director, Forensic Dentistry
 Ministry of the Solicitor General Quebec
 1701 Parthenais
 Montreal, Quebec
 H2K 3S7
 Tel: (514) 873-3300 Δ



Doris Pritchard, dental librarian, retires



Mrs. Doris Pritchard

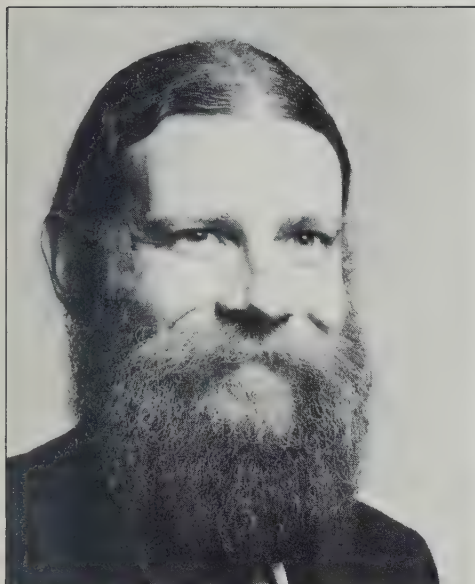
Mrs. Doris Pritchard, librarian at the Faculty of Dentistry, University of Manitoba, retired on June 30 after 30 years of dedicated service. Mrs. Pritchard was the founding librarian when the new Faculty was established in 1958. It was the first new Dental School in Canada in 40 years. Mrs. Pritchard said she was a little nostalgic about her retirement — she was the last survivor of the original small group chosen to start the new faculty in Winnipeg.

Mrs. Pritchard recalled, "The space for the library was already defined when she arrived on the scene but the design itself had to be drastically changed . . . it appeared to be a design for a library of the 19th century". Much credit for the Library's stature today goes to Dr. J.W. Neilson, the founding Dean. "Dr. Neilson in his wisdom accepted all of the changes I suggested," said Mrs. Pritchard.

The new Library 30 years ago had to start with bare shelves, but appeals sent by Doris Pritchard and Dean Neilson to dental libraries across Canada, United States and abroad, brought forth overwhelming support. Many of the volumes received by Manitoba in those early days were duplicates and they in turn were sent to form the nucleus of the dental collection for the libraries at the new schools at the Universities of Laval and Western Ontario.

Today the Library in Manitoba, officially known as "The Neilson Dental Library", can be proud to be one of the finest in the land, but lack of space and the need for modern electronic facilities is a concern. As part of the University of Manitoba's current \$42 million "Drive for Excellence" Campaign, there are plans to establish a Health Sciences Centre Library that will include the dental and medical libraries together, within a new \$8 million complex. Δ

'If you can do it in Thunder Bay, you can do it anywhere'



Dr. Bill Hettenhausen

Thunder Bay, the beautiful community at the head of the Great Lakes, with a population of 122,200 served by 72 dentists, has won the 1988 Ontario Dental Association Award for the Best Dental Health Awareness Campaign. This is the second time in the four year history of the Award that Thunder Bay has had its name inscribed on the ODA Honour Role.

In addition to the recognition by their peers within the province, dentistry, represented by Dr. Bill Hettenhausen, has received the City of Thunder Bay's "Achievement Award" in Recognition of Distinguished Contribution to the Community.

Dentists throughout Canada may wonder if all these awards are because the dentists in Thunder Bay are smarter, or if the good people of Thunder Bay just want "all that prevention" more so than the rest of the country.

"Not at all", says Dr. Bill Hettenhausen, the founder and Executive Director of Your Teeth For A Lifetime Foundation. "It's possible because of the excellent working relationship between the dentists, hygienists, assistants and the District Health Unit. It is also because of the hard work of the dental health month co-ordinator and his staff".

Dr. Reijo Peltoniemi, the Thunder Bay orthodontist who was the 1988 Coordinator, modestly stated, "our award-winning campaign is not an overnight effort by one person. It is built on the previous efforts of Dental Health Month

co-ordinators over the past 15 or more years". The annual campaign is not based just on handouts, computerized dental health awareness checks, and video slide shows, "but by the public/professional interaction and the quality of communication", said Dr. Peltoniemi.

Dr. Hettenhausen is enthused that finally the efforts are matched by achievement. An informal poll of local dental offices indicated that recurrent dental disease in Thunder Bay is down considerably and the utilization of dental services has increased. Hettenhausen indicated that upwards of 45 per cent of many dentists' income is derived from diagnostic and preventive services. Cosmetic bonding alone has risen to more than 15 per cent of restorative services. And all this in a city that has no fluoridated water supply!!

"The secret of our success", says



General view of Thunder Bay

ment to communication and public education. Not only are we informing the public that the benefits of regular preventive dental care far outweigh the advantages of neglect, but we are proving that we really care. If we can do it in Thunder Bay, dental health workers can do it anywhere". Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	September 9, 1988	July 31, 1988
Fixed Income Fund	61.75160	61.09009
Common Stock Fund	13.78719	13.90524
Money Market Fund	41.59011	41.06594
Balanced Fund	25.28801	25.20949

Interest rates:

Guaranteed Fund

Term	*Interest rates as at	
	September 9, 1988	July 31, 1988
1 yr	10.10%	9.50%
2 yr	10.40%	9.70%
3 yr	10.50%	10.00%
4 yr	10.65%	10.10%
5 yr	10.85%	10.30%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

September 9, 1988	July 31, 1988
\$96,193,539	\$95,097,750

For further information:



CDA RSP

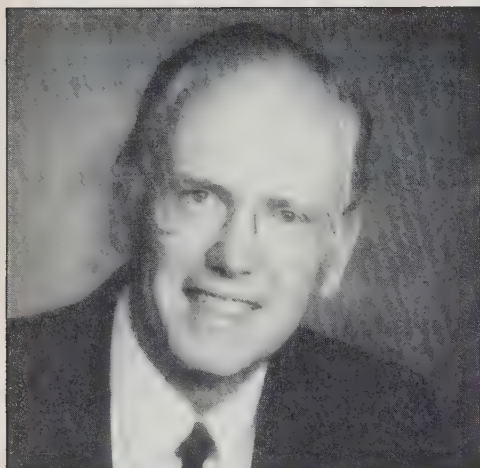
Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117



Dr. Graham Pettapiece

Dr. Graham Pettapiece, a Victoria, B.C. prosthodontist, has been elected President of the Pacific Coast Society of Prosthodontists.

Dr. Pettapiece graduated from McGill University in 1955 and practised for 13 years in Parksville before relocating in Victoria.

He is a Past-President of the B.C. Dental Association and has been a committee chairman for the Canadian Dental Association. Dr. Pettapiece is the second Canadian President of the Pacific Coast Society of Prosthodontists. The Society was founded in 1930 and is one of three founding societies of the Journal of Prosthetic Dentistry. The Society meets this year from June 21 to 24 in Sun River, Oregon and will present an outstanding scientific program with international speakers. △

A Danish doctor has developed a method for transplanting teeth within a patient's mouth and from donors to recipients by freezing teeth and using them later.

The donors are usually young people having teeth pulled for orthodontic reasons. The teeth are sorted and classified according to the donor's tissue type as determined by a blood test and then stored at -200C.

Dr. Ole Schwartz of the Copenhagen Dental College moves teeth from the upper to the lower jaw, or from the back to the front of the mouth. He claims this technique could be most useful for people with cleft palates whose maxillary teeth are usually pulled prior to rebuilding the jaw. Now, the pulled teeth can be frozen and reinserted into the restructured jaw.

According to Dr. Schwartz, the threat of rejection with the transplanted teeth can be overcome by matching tissue types between donors and recipients as closely as possible. Even with a good tissue match, gradual rejection over a period of 20 or 30 years is likely. Dr. Schwartz has spent 30 years developing the world's first bank of frozen teeth. His research now focuses on refining the method of classifying tissue types, as well as doing immunological research to understand and neutralize the rejection mechanism. △

The 11th International Festival of Dental Films and Videos will be staged in Paris, France, in the context of the Congress of the International Dental Association (ADF), scheduled from the 21st to the 24th of November, next.

For many years now, the International Dental Film Days, held every three years, have formed part of the professional events, which are becoming increasingly successful and better known throughout the world.

For the second time, Video makes an appearance during this event. Until now, these Days have been reserved for 16 mm films, thus initiating a real Audio-Visual Festival.

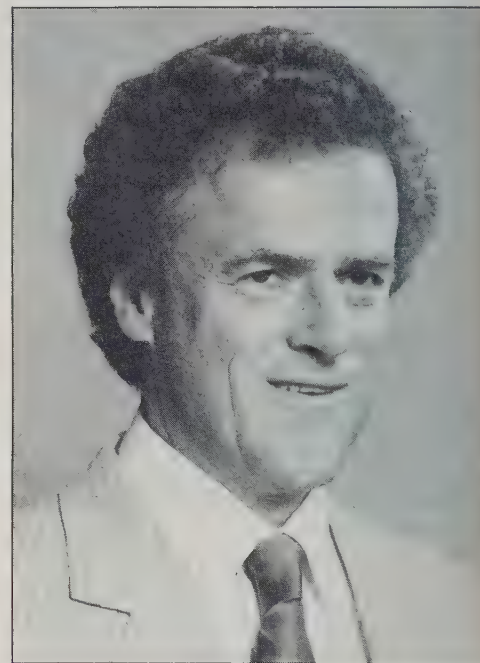
Filmmakers from all over the world will take part in these Days, and there will be many prizes.

The Festival is being organized by the Permanent Dental Film Committee, under the presidency of Professor Danielle Buch. △

Human saliva contains a factor that blocks the AIDS virus, a preliminary study by scientists at the National Institute of Dental Research in Maryland concludes. This finding may help to explain why the disease is not transmitted orally, these researchers have reported in a recent edition of the Journal of the American Dental Association.

"There is a lot of very convincing, though indirect, evidence that AIDS is not spread by oral fluids", says Dr. Philip Fox, who heads the research team. Nevertheless, many people remain concerned about the risk of AIDS being transmitted orally. "The discovery of a protective factor in saliva is reassuring because it provides a biological explanation for why the mouth is not a route of transmission," he added.

Previous studies have also suggested that saliva has a protective role against AIDS. △



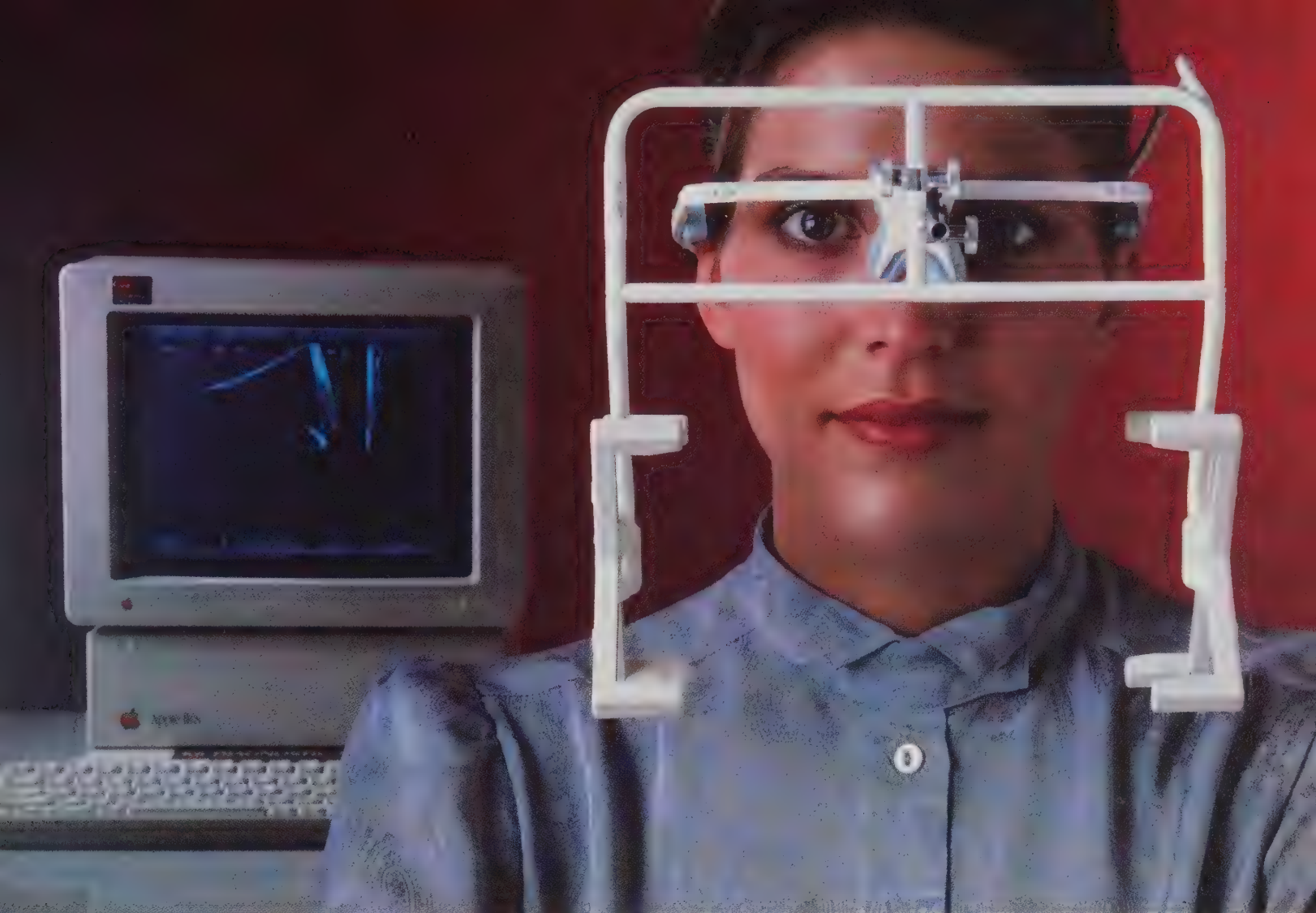
Dr. Stephan M. Brayton

Dr. Stephan M. Brayton, of Halifax was appointed President of the Nova Scotia Dental Association during the NSDA annual meeting held at Dalhousie University's School of Dentistry.

Dr. Brayton served on the Dental Manpower Advisory Committee and the Management and Executive Committees of the NSDA, prior to this appointment.

He is past president of the Canadian Academy of Endodontics, past chairman of the Society of Dental Specialists of Nova Scotia, a Fellow of the Royal College of Dentists of Canada, a Diplomate of the American Board of Endodontics and a Fellow in the Academy of Dentistry International.

Born in Massachusetts, he received his BSC and DMD from Tufts University in Boston. After his dental internship at the Michael Reese Hospital and Medical Center in Chicago, Dr. Brayton served in the U.S. Navy Dental Corps and then entered private practice in Boston. In 1972 he returned to Tufts and received a Certificate in Endodontics. From 1972 to the present, he has conducted a private practice in Halifax. He is a part-time professor at Dalhousie School of Dentistry, where he is also Head of the Division of Endodontics. △



© 1987 Myo-Tronics, Inc.

Head And Shoulders Above The Rest.

The latest advancement in Neuromuscular Technology. From the company that invented it.

To be sure you're getting the most advanced neuromuscular instrumentation available, go to the company that invented the science. Myo-Tronics. Maker of state-of-the-art instrumentation for over 19 years. No one knows the technology better.

Our new K-6 Diagnostic System sets the standard others aspire to. No one can touch it for accuracy

or ease of use. It provides a three-dimensional analysis of the most minute mandibular movement. Without the programming and complex commands required by other systems.

You'll get an objective occlusal analysis on paper, immediately. Providing clear documentation for insurance and legal proceedings. And it can be used to record the patient's history and exam results, too.

But equipment isn't the only reason to choose Myo-Tronics. We

offer the largest neuromuscular dentistry education program in the world. With in-depth training at all levels. No wonder more than 5000 practitioners rely on Myo-Tronics. We wrote the book on neuromuscular diagnosis.

Raise your diagnostic procedures head and shoulders above the rest. Call Myo-Tronics at 1-800-426-0316 for more information on the K-6 or upcoming seminars.



MYO-TRONICS, INC.

Myo-Tronics, Inc., 720 Olive Way, Suite 800, Seattle, WA 98101, (206) 622-2121, Telex: 32-8410.

**DEDICATED TO THE
MEDICAL PROFESSION**

MDICL[®] INC.



MDICL INC.
175 TORYORK DRIVE, UNIT #6
WESTON, ONTARIO
M9L 2Y7

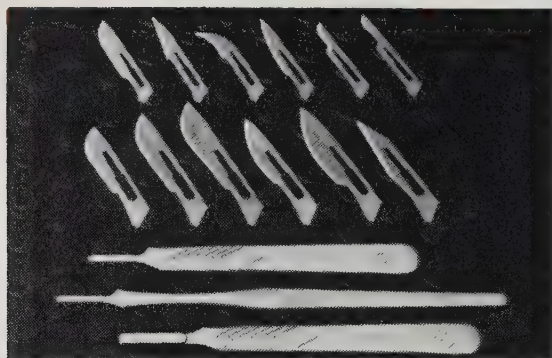
Please call from anywhere in Canada
Toll Free - 1-800-387-7477

TEL: (416) 747-1125
FAX: (416) 783-5795

SUPER SPECIALS 1988

STERILE SURGICAL BLADES

AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20,
21, 22, 23, 24, 25



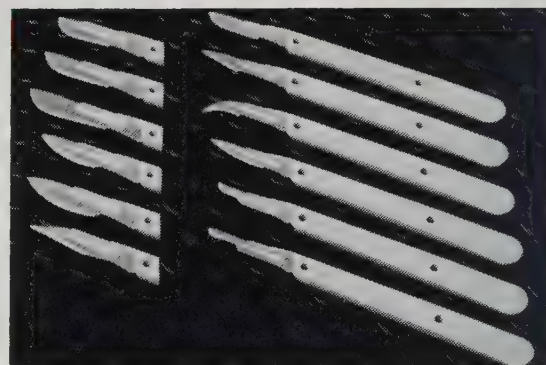
SUPERB SHARPNESS, FOIL WRAPPED, IN QUICK DISPENSER BOXES.
MADE IN JAPAN FROM THE HIGHEST QUALITY MATERIALS, FOR
ASSURED UNIFORMITY.

VERY SPECIAL PRICE

ANY SIZE **\$17.99** Box of 100

STERILE DISPOSABLE SCALPELS

HIGH QUALITY BALANCES WITH A SUPERB
ARROW SHAPED DESIGN FOR ASSURED GRIP



EACH SCALPEL IS PACKED IN A POLYESTER SHEET OF ALUMINUM FOIL
TO PROTECT BLADE EDGES. CONVENIENTLY PACKED IN DISPENSER
BOXES. AVAILABLE IN ALL SIZES: 10, 11, 12, 14, 15, 15A, 20, 21, 22, 23, 24, 25

VERY SPECIAL PRICE

ANY SIZE **\$11.99** Box of 20

SILK SURGICAL SUTURES

HIGHEST QUALITY OF SWISS MADE SUTURES OVER 40
YEARS WORLD MARKET - AVAILABLE IN ALL SIZES & TYPES.

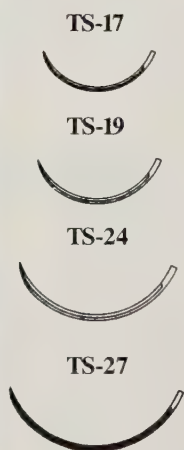
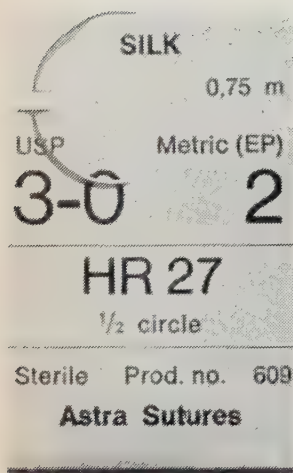
NEEDLES ARE SHOWN IN
ACTUAL SIZE OF SHAPE & LENGTH

TS-needles

3/8 CIRCLE, REVERSE CUTTING

HS-needles

1/2 CIRCLE, REVERSE CUTTING



OTHER SIZES & STYLES
ARE AVAILABLE

VERY SPECIAL PRICE

ANY SIZE **\$17.99** Box 12

SUNDRY SPECIALS

1. Dental bibs, 3 Ply 500 per package **\$23.99**
2. Dental bibs, waterproof 500/boxed **\$34.99**
3. Sterilizing solution BIOCIDE-R 4/4L **\$79.99**
4. Latex Gloves S/M/L Per 100 **\$17.99**
5. STERIWIPEs - Towelettes with Chlorhexidine Gluconate ea. **\$5.99**
6. CANPROCAINE - Topical Anesthetic Spray/5% Lidcoaine 150ml **\$8.99**
7. DERMAGUARD - Microcidal hand protectant **\$7.99**
8. Aneroid Blood Pressure Kit & Stethoscope **\$29.99**
9. Resuscitator Kit with case **\$179.00**
10. TENS DUAL CHANNEL - Variable Mode **\$179.99**
11. Lab Coats Saniguard treated to fight infection **\$24.75**
12. Face Masks Slip On's 50 per box **\$13.99**

VISA & MASTERCARD ARE WELCOME.

TO ORDER OR FOR FURTHER INFORMATION PLEASE CALL TOLL FREE FROM ANYWHERE IN CANADA
1-800-387-7477

POSITIVE DENTAL PREVENTION: THE PREVENTION IN CHILDHOOD OF DENTAL DISEASE IN ADULT LIFE

Edited by Richard J. Elderton

*William Heinemann Medical Books,
London 1987, 146 pages*

This publication presents under one cover the various lectures presented, as a continuing education course, to the Community Dental Services Group of the British Dental Association at the University of East Anglia, U.K., during the autumn of 1987.

The first chapter presents and compares epidemiological data from the 1973 and 1983 national surveys of Children's Dental Health in England, Wales, Scotland, and Northern Ireland. It sets the scene for the treatment modalities outlined in subsequent chapters by documenting the decline in dental caries and suggesting that the chair time "freed-up" as a result of this decline could be utilized to apply those preventive strategies which would ensure the improved state of oral health of these patients would carry through to adulthood.

The second chapter discusses the prevalence and the types of periodontal disease found in children, with special emphasis on juvenile periodontitis. A means of adapting and interpreting the Community Periodontal Index of Treatment Needs (CPITN) to be mixed dentition is presented.

The remaining chapters review the carious process, discuss approaches to managing those patients considered at high or low risk to dental caries, outline present day concepts of cavity preparation and design, review the use of amalgam, composite resins or glass ionomer cements as filling materials, discuss interceptive orthodontics and the use of functional appliances, and addresses elective tooth extractions as a means of aligning teeth in crowded dentitions. Diet counselling, oral hygiene instruction, and the recommendations for systemic and topical fluorides are also reviewed.

Chapter 9, one of several chapters authored by Richard Elderton, gives a somewhat cynical, yet thought provoking view of the ability of dentists to accurately diagnose dental caries or to diagnose when it is deemed necessary to replace "defective" restorations. The data reported upon indicates that those patients with high levels of attendance at dental offices were the recipients of greater numbers of restorations, greater numbers of replacement fillings, and greater numbers of crowns than infrequent attenders. It was also reported that those patients who changed dentists received greater numbers of restorations than those who remained with the same dentist.

This publication reviews the current knowledge and teaching in the field of paediatric dentistry. It also reports that certain conditions encountered in the child patient would best be managed by consultation or referral to a specialist. This book would serve as a useful review and update for those dentists in general practice who treat significant numbers of children in their offices. Δ

*This book was reviewed by:
Ray E. McDermott, DDS, MSc
Associate Professor and Head
Department of Community and
Pediatric Dentistry
University of Saskatchewan*

CHANGE YOUR SMILE

by Ronald E. Goldstein, DDS

*Quintessence Publishing Co., Inc. 1988
Chicago, 254 pages
\$29.50 US*

The author opens his book with the very clever use of a "self-analysis" questionnaire titled "Are you a Candidate for Cosmetic Dentistry?" By answering the brief 15 question analysis the reader is very likely to associate himself with a problem. This in turn encourages him to read on in search of a solution. A "smile-analysis" questionnaire is then presented which makes the reader aware of various smile related problems and, briefly, of the available solutions.

In succeeding chapters the author goes

into greater detail by discussing the aforementioned problems with various possible solutions. He covers a variety of problematic stains and their solutions and takes the reader through a graphic description of composite laminates, porcelain laminates and crowns.

The chapter on "spaces" vividly describes conventional bridges and resin-bonded bridges. This pictorial description of various procedures answers many questions commonly asked by patients. Other chapters give brief, but to the point, descriptions of occlusal problems and their solutions. It also deals with the advantages and disadvantages of various techniques used to correct such problems.

Another chapter deals with various periodontal problems and the ways in which they alter the "smile". The author also discusses the ways and means of preventing gingival disease and the problems of gingival recession or of displaying too much gingiva. He discusses improving the smile and facial appearance through plastic surgery by making changes to the nose, lips, eyebrows, forehead and sagging facial tissues.

The final chapter has an interesting discussion on what patients can do to improve their smiles. The author describes how bad habits affect the teeth, how various types of facial contours affect the smile and also, how to smile. There is an interesting section on creating illusions with cosmetics.

Many solutions are repetitions but the problems have been well separated in the eleven chapters. The book presents an interesting facet of dentistry — one that is very appropriate in our present day society. This is not a "how-to" book for the dentist but it is definitely educational for the patient. An enhancing feature, to that end, is the frequent use of highlighted boxes of information.

Lastly, I am glad to see that the second edition is better bound than the first edition. My copy of the first edition did not last a month in our waiting room before the pages came unglued. Δ

*This book was reviewed by:
Dr. Shaukat Chaney
Prosthodontist
Ottawa, Ont.*

HUMAN ORAL EMBRYOLOGY & HISTOLOGY

Edited by Ivar A. Mjoer & Ole Fejerskov

Published by Munksgaard, Copenhagen, Hard cover, 317 pages, 25 x 17 cm with 520 illustrations.

The book is remarkable as much for what it is not as for what it is. The combination of print size and two 6 cm wide columns per page make for easy reading. The thirteen contributors have managed to maintain a generally light style of prose in the eleven chapters.

The book initially impressed me as the standard by which others would be judged because of the large number of high quality illustrations. These include tables, light and scanning electron photomicrographs, X-rays, and even line drawings with 'Pakman' caricatures. I liked the use of italics in the initial chapters to highlight key words. Unfortunately the promise was short lived as the use of italics in later chapters was inconsistent.

The further I read through the text the fewer notes I made of content and the more I made of grammatical errors. By the time I finished the book my overall impression was that the book should have been proofread by someone with a degree in English. Literal translations have resulted in peculiar language. One sentence started and ended with a preposition. Obscure words (conterminous) juxtapositioned with colloquial terms (splotch) detract from what could have been a first rate text. Any proofreader should have picked up the incomplete sentence which trailed off into a blank line on page 73. This is unfortunate because it is obvious that the book has been well thought out and researched, but scientific information should be presented in a lucid and conventional way.

I found myself in a dilemma as I read the book. Should I give the authors credit for a superb effort, or should I protect students from a text which contains inconsistent terminology and flaws in English usage? I prefer the term 'keratinized' to 'cornified', the hyphenations, used as if the text were German, butchered the language and 'bent' is correct English, 'bended' is not. Statements such as, "has obvious clinical significance," may be meaningless to students.

Page 277 contained a personal observation by one author which takes no account of individual anatomical variations. His statement might confuse a student or lead to interesting extramural investigations. In the same vein, comments such as "it is not unreasonable to suppose. . ." and "by a process of elimination, but in the absence of direct evidence, it is reasonable to hypothesize. . ." may be inappropriate in a text designed for undergraduates.

There were a few statements which, as a practicing dentist, I questioned for validity. On pages 188 and 189 the authors are so emphatic that teeth drift mesially that a student could be forgiven for not knowing that teeth also drift distally.

Overall I found it to be a good book, but it will be of more use as an atlas of histology, than a comprehensive text, until the flaws have been rectified. Sadly I felt there was insufficient embryology and too little general cytology. Although references were numbered in the bibliography appended to each chapter, there were no complementary numbers in the text that would assist in furthering one's knowledge.

The book will form a useful addition to a student's library, provided it is not the sole text on the subject. As a dentist I found exciting new information mixed in with the quaint English. Δ

*This book was reviewed by:
Trevor Lyons, BDS (London),
LDS RCS (England),
Ottawa, Ont.*

VOS DENTS

D^r Daniel Kandelman

*Les Éditions de l'Homme, 182 pages
Montréal, Québec 1987*

Ce livre se présente sous forme d'un guide d'information pour le public.

Il comporte trois grandes parties; la première, "Les dents et la bouche" décrit d'une part les structures dentaires et péri-dentaires, précise particulièrement la fonction des dents, l'importance des dentitions primaires et permanentes et leur calendrier d'éruption, d'autre part explique de façon très compréhensible pour le lecteur, les principales maladies et/ou problèmes dentaires.

La deuxième partie concerne la prévention et traite ce sujet de façon très origi-

nale puisqu'il présente successivement les mesures préventives à la disposition du public et du dentiste et ensuite dispense des conseils judicieux par catégorie d'âge (enfants, adultes, personnes du troisième âge, période de grossesse), ce qui permet au lecteur de lire les aspects qui le concernent plus particulièrement.

La troisième partie est consacrée essentiellement aux traitements effectués par le dentiste, en commençant par l'examen dentaire, le diagnostic, le plan, les options et les types de traitement.

Enfin un ensemble d'informations très utiles renseignent le lecteur sur les régimes d'assurance dentaire, les spécialités de la dentisterie et le travail du dentiste et du personnel auxiliaire en bureau privé.

Les illustrations sont de très bonne qualité et la présentation du texte est excellente car chaque section est traitée sous forme de questions que se pose en fait le public à l'égard de la santé dentaire et de notre profession.

En conclusion, je trouve que ce livre constitue un excellent guide familial qui remplit parfaitement ses objectifs d'information et de vulgarisation. Δ

*Livre revu par
Pierre Desautels, Université de Montréal*

Help BREAK THE PATTERN OF POVERTY



Please contribute to:

USC
Canada

56 Sparks
Ottawa
K1P 5B1

(613) 234-6827

Pit and Fissure Sealants

Les obturateurs pour puits et fissures

1. Busscher, H.J., Retief, D.H. and Arends, J. "Relationship between surface-free energies of dental resins and bond strengths to etched enamel." *Dental Materials*. Apr. 1987, v. 3, no. 2, pp. 60-3.
2. Boksman, L. and others. "Clinical evaluation of glass ionomer cement as a fissure sealant." *Quintessence International*. Oct. 1987, v. 18, no. 10, pp. 707-9.
3. Chapko, M.K. "A study of the international use of pit and fissure sealants over carious lesions." *Journal of Public Health Dentistry*. Summer 1987, v. 47, no. 3, pp. 139-42.
4. Chosack, A. and others. "The parameters influencing time of application of fissure sealants: etching time, type of polymerization, and experience." *Clinical Preventive Dentistry*. Mar-Apr. 1987, v. 9, no. 2, pp. 17-21.
5. Cohen, L., Romberg, E. and LaBelle, A. "Pit and fissure sealant use in private practice: influence of state practice acts." *American Journal of Public Health*. Mar 1988, v. 78, no. 3, pp. 316-7.
6. De Craene, G.P., Martens, C. and Dermaut, R. "The invasive pit-and-fissure sealing technique in pediatric dentistry: an SEM study of a preventive restoration." *ASDC Journal of Dentistry for Children*. Jan-Feb. 1988, v. 55, no. 1, pp. 34-42.
7. Daniel, S.J. and others. "Examiner reliability in evaluating dental sealants." *Dental Hygiene*. Sept. 1987, v. 61, no. 9, pp. 410-3.
8. Daniel, S.J. and Scruggs, R.R. "The reliability of three methods for evaluating dental sealants." *Journal of Dental Education*. Apr. 1987, v. 51, no. 4, pp. 182-5.
9. van Dorp, C.S. and ten Cate, J.M. "Bonding of fissure sealant to etched demineralized enamel lesions." *Caries Research*. 1987, v. 21, no. 6, pp. 513-21.
10. Eidelman, E. and Shapira, J. and Houpt, M. "The retention of fissure sealants using twenty-second etching time, three-year follow-up." *ASDC Jour-*

- nal of Dentistry for Children*. Mar-Apr. 1988, v. 55, no. 2, pp. 119-20.
11. Garcia-Godoy, F. "Microleakage of type C preventive resin restoration." *Compendium of Continuing Education in Dentistry*. Nov-Dec. 1987, v. 8, no. 10, pp. 764-6, 768.
12. Houpt, M. and others. "Autopolymerized versus light-polymerized fissure sealant." *Journal of the American Dental Association*. Jul. 1987, v. 115, no. 1, pp. 55-6.
13. Matis, B.A. "The implementation of pit and fissure sealants. Lessons in information transfer about preventive dentistry." [Review article]. *Dental School Quarterly*. 1987, v. 3, no. 2, pp. 7-10.
14. McComb, D. "Examining clinical applications of glass ionomer cements." *Ontario Dentist*. May 1987, v. 64, no. 5, pp. 25-8, 31-3.
15. McCourt, J.W. and Eick, J.D. "Penetration of fissure sealants into contraction gaps of bulk packed auto-cured composite resin." *Journal of Pedodontics*. Winter 1988, v. 12, no. 2, pp. 167-75.
16. McKenna, E.F. and Grundy, G.E. "Glass ionomer cement fissure sealants applied by operative dental auxiliaries — retention rate after one year." *Australian Dental Journal*, Jun 1987, v. 32, no. 3, pp. 200-3.
17. Mertz-Fairhurst, E.J. and others. "Clinical performance of sealed composite restorations placed over caries compared with sealed and unsealed amalgam restorations." *Journal of the American Dental Association*. Nov. 1987, v. 115, no. 5, pp. 689-94.
18. Ripa, L.W., Leske, G.S. and Forte, F. "The combined use of pit and fissure sealants and fluoride mouthrinsing in second and third grade children: final clinical results after two years." *Pediatric Dentistry*. Jun 1987, v. 9, no. 2, pp. 118-20.
19. Scott, L. and Greer, D. "The effect of an air polishing device on sealant bond strength." *Journal of Prosthetic Dentistry*. Sept. 1987, v. 58, no. 3, pp. 384-7.
20. Silverstone, L.M. "The current state of sealant research." *Journal of the Massachusetts Dental Society*. Winter 1987, v. 36, no. 1, pp. 15-8, 20, 38-9.
21. Simonsen, R.J. "Retention and effectiveness of a single application of white sealant after 10 years." *Journal of the American Dental Association*. Jul. 1987, v. 115, no. 1, pp. 31-6.

22. Swift, E.J. Jr. "The effect of sealants on dental caries: a review." [Review article]. *Journal of the American Dental Association*. May 1988, v. 116, no. 6, pp. 700-4.
23. Tanaka, M. and others. "Incorporation into human enamel of fluoride slowly released from a sealant in vivo." *Journal of Dental Research*. Oct. 1987, v. 66, no. 10, pp. 1591-3.
24. Weintraub, J.A. and Burt, B.A. "Prevention of dental caries by the use of pit-and-fissure sealants." *Journal of Public Health Policy*. Winter 1987, v. 8, no. 4, pp. 542-60.
25. Whyte, R.J., Leake, J.L. and Howley, T.P. "Two-year follow-up of 11,000 dental sealants in first permanent molars in the Saskatchewan Health Dental Plan." *Journal of Public Health Dentistry*. Fall, 1987, v. 47, no. 4, pp. 177-81.

One copy of the above articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

La bibliothèque de l'ADC offre pour 5\$ à ses membres et pour 10\$ aux non membres une copie des articles ci-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherches bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982.

Téléphone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

Concern about cyclamate as toothpaste sweetener

As a result of concern expressed by Dr. Randall Dale in a Letter to the Editor, the Journal sought information on the subject from the Chairman of CDA's Committee on Consumer Product Recognition, from the Health Protection Branch, Health and Welfare Canada, and from the manufacturer, Procter & Gamble Inc. The responses follow Dr. Dale's letter, below.

Concern about Cyclamate

Recently, a representative from CREST toothpaste informed me that the sweetener in their product is CYCLAMATE. We both understood that cyclamate has been found to cause cancer. A call to their toll-free hotline for questions to consultants regarding their product yielded a "I don't know. I am basically a PR man."

I understand there is probably such a low dose that it is deemed "Safe" by the powers-that-be. However, I would prefer to use a product that did not have carcinogenic sweeteners, no matter how little is present.

I grow concerned about how much of the new, very sweet "Sparkle" toothpaste my children swallow. Can anybody tell me why the CDA endorses a product that has been shown to cause cancer, when other non-carcinogenic, non-cariogenic, naturally occurring sweeteners, such as Xylitol, are available? Δ

*Randall M. Dale, BSc, DDS
Nelson, B.C.*

Response from CDA Committee

On behalf of the Committee for Consumer Products Recognition, I wish to answer the interesting questions raised by Dr. Dale.

Fluoridated toothpastes, whose safety is the responsibility of the Health Protection Branch of Health and Welfare Canada, are not the only drug products in which cyclamates are employed as sweeteners. Dr. R.A. Armstrong, M.D., Chief of the Drug Evaluation Division of the Bureau of Nonprescription Drugs, assured

us by letter, a) that cyclamates are not carcinogenic, and b) that cyclamates in drug products pose no significant hazard.

According to Dr. Armstrong, non-sucrose sweeteners such as aspartame, are increasingly used in drug products. The CPR Committee is interested in this information because the use of sucrose in medications is of concern to the dental profession. An ideal sweetener for drug products would not contribute to caries formation and also would have no adverse effects on general health.

Xylitol may prove to be one of a number of useful sweeteners for drug products such as fluoridated toothpastes. The CPR Committee has been advised that there might be a problem with the stability of xylitol in liquid-containing products. The superiority of xylitol over other replacements for sucrose has not yet been clearly established in the scientific literature. Alternatives to sucrose as a sweetener are under review by the Committee for Consumer Products Recognition.

I hope that Dr. Dale will find these comments useful in deciding which dental home care products to recommend to his patients. Δ

*F. Michael Eggert, DDS, MSc, PhD
Chairman, CDA Committee for
Consumer Products Recognition.*

Health Protection Branch response

This is in response to the letter of May 31, 1988, concerning toothpastes containing Cyclamate as a sweetener.

While cyclamates were originally thought to be carcinogenic, subsequent studies have shown that this is not so. Cyclamates at appropriate levels are permitted as sweeteners in drug products, including some toothpastes, but other non-sucrose sweeteners, including aspartame, are being increasingly used.

It is not considered that the amount of cyclamate contained in drug products on the Canadian market, including medicated toothpastes, poses any significant hazard when the products are used in accordance with label instructions.

I trust that the above will answer your questions regarding this matter. Thank

you for bringing them to the attention of the Health Protection Branch. Δ

*R.A. Armstrong, M.D.,
Assistant Director and Chief,
Drug Evaluation Division,
Bureau of Nonprescription Drugs,
Health Protection Branch,
Health and Welfare Canada.*

Manufacturer's response

This responds to the letter regarding Dr. Dale's question about the use of cyclamate in Crest toothpaste. When the Health Protection Branch banned the use of saccharin in drug products effective January 1, 1980, we selected cyclamate as the replacement sweetener for three reasons.

1) Based on our review of the extensive safety data available on cyclamate at the time we were assured that the material met our standards of safety under conditions of use and reasonably foreseeable misuse in a toothpaste product. We continue to find that cyclamate meets our safety criteria.

2) We also considered the position of the Health Protection Branch on cyclamate. The HPB concluded that the material was not a carcinogen and that it met the safety requirements of the Canadian Food & Drugs Act and Regulations for use in a toothpaste product. This continues to be their position based on their continued approval of toothpaste variants containing cyclamate.

3) A non cariogenic sweetener such as cyclamate is an important ingredient in toothpastes as it contributes to their acceptance which is important to achieving patient compliance and therefore the anticaries benefit.

Dr. Dale should be aware that cyclamate is in general use in toothpastes and other drug products and is not unique to Crest. We trust that the Health Protection Branch will reinforce the view that cyclamate is not a carcinogen and is safe for use in toothpaste products.

We trust that this response meets your needs and look forward to hearing the response provided by the HPB. Please let us know if you need further assistance. Δ

*G.G. Parker,
Product Development Department
Procter & Gamble Inc.*

Political editorial?

The Editorial in the June, 1988 edition of the Journal of the CDA: "CDA leads the way (and so it should!)" appears to be more politically than dentally oriented.

Why does Dr. Crawford have a problem with Dr. Covit's note to Dr. Markey with reference to the Conference on Infection Control, initiated by Dr. Markey and his Executive Council?

Thereafter, most of the Editorial is based on Dr. Crawford's ideas about Canadian Nationalism. Did the CDA's headquarters move to Ottawa from Toronto in 1977 make it a more nationalistic organization? Certainly the CDA seemed to have survived and flourished in Toronto for many decades.

Do I note a sign of cynicism or resentment in Dr. Crawford's comments, because the Ordre des dentistes du Québec do not make it mandatory for its members to join the CDA? In my opinion, this is not one of Dr. Crawford's better Editorials. Δ

Morris Gordon, DDS,
Vancouver, B.C.

'Special meaning'

Enclosed is a picture of the T-shirt I won in the poster contest you ran at my school, Bridgewater Elementary. This has special meaning as my Grandfather (Dr. William Miller) is a Honorary Life Member of the C.D.A. Δ

Thanks,
William Miller



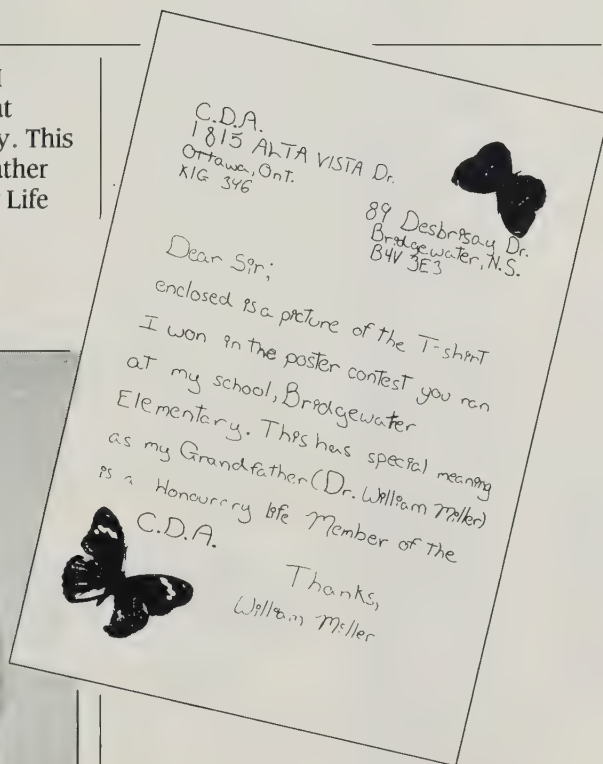
William Miller, age 11

Editor's Note:

In reply to Dr. Gordon's letter there are three points requiring clarification.

1. There was no problem at all with Dr. Covit's letter to Dr. Markey . . . we thought it was a great comment. That is why it was quoted.
2. Our opinion is firm; the move to Ottawa from Toronto in 1976 was strategic, perhaps political, but strategic. With increasing influence of the Federal Government in Health Care matters, dentistry's presence in Ottawa has been nothing except beneficial. Apparently our views are shared by others; the Canadian Medical Association, the Canadian Pharmaceutical Association, and the Canadian Red Cross are all our neighbors on Alta Vista Drive.
3. The Ordre des Dentistes du Québec has nothing to do with mandatory membership in CDA. A provincial statute in both Quebec and Ontario prohibits mandatory membership in voluntary organizations, i.e., organizations not required for licensure.

A parting comment: we also hope the June issue wasn't one of Dr. Crawford's better editorials. We hope they get better! Δ



Editor's note: The writer was one of the winners in the National Dental Health Month Poster Contest. He explains that winning a prize has special meaning for him. There is also the hint that he is considering a career in dentistry.

Obituaries/ Nécrologie

Power, John G.: Dr. Power was born in 1920 and was graduated in dentistry from the University of Toronto in 1954. He practised in North Vancouver, British Columbia.

Rogers, G.L.: Dr. Rogers was a graduate in dentistry from the University of Alberta, in 1956. He conducted a practice in Swift Current, Saskatchewan.

Roy, Manley R.S.: A graduate of the University of Toronto in 1925, Dr. Roy practised in Winnipeg, Manitoba, until his retirement in 1977. He was a Life Member of the Winnipeg Dental Society and the Manitoba Dental Association. Prior to entering dentistry, Dr. Roy served overseas during the First World War, in the Canadian Army.

Shaffner, W.J.: Dr. Shaffner, who was a graduate of Dalhousie University dental school in 1942, practised in Bridgewater, Nova Scotia. He was a Life Member of the CDA.

Wagle, S.G.: Born in 1934, Dr. Wagle was a graduate in dentistry from the University of Bombay, in 1961. He conducted a practice in Milton, Ontario, for a number of years.

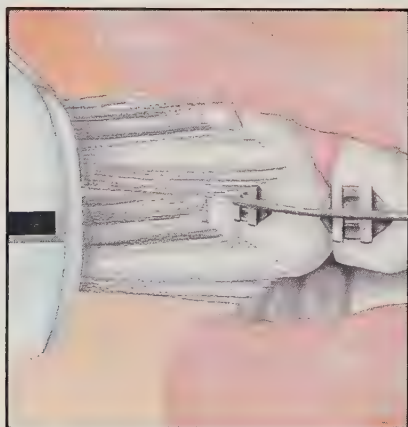
Clinically Speaking: **INTERPLAK® Proven Statistically Superior to Hand Brushing**

The purpose of this investigation was to evaluate the effectiveness of the **INTERPLAK®** Home Plaque Removal Instrument in the removal of plaque in orthodontic patients, and to compare its effectiveness with that of a conventional, manual, soft-bristled toothbrush.

Following is an edited excerpt from a clinical study published in the Compendium of Continuing Education in Dentistry, Supplement No. 6, 1985. The study was performed by David E. Long, DDS, and William J. Killoy, DDS, MS, University of Missouri, Kansas City.

METHODOLOGY:

The study involved fourteen orthodontic patients with a plaque index greater than 50% and an interarch difference of less than 15%. The patients' teeth were stained with a disclosing solution and a plaque score taken using a modification of the O'Leary Plaque Index. Patients were instructed to brush one arch with the manual toothbrush using a modified Bass technique, and the other arch using **INTERPLAK®**. After brushing, their teeth were again disclosed and a second plaque score was obtained. Both scorings were performed by the same examiner, who was blind to the location of the toothbrushing.



The gently tapered tufts straddle the archwire, safely cleaning interproximal and subgingival areas.



Mandibular occlusal views of one patient, before and after brushing with **INTERPLAK®**.

RESULTS:

The improvement in postbrushing plaque scores after use of the **INTERPLAK®** Instrument was significantly better than that of the manual brush ($P < 0.01$). The mean postbrushing scores were 34.0% for the manual brushing and 16.5% for **INTERPLAK®**. Ten of the 14 arches brushed with **INTERPLAK®** had plaque scores of less than 20%, while only one of the 14 arches brushed manually had an equally low score.

FOR MORE INFORMATION...

This is one of eight clinical studies completed to date regarding the safety and efficacy of **INTERPLAK®**. For a complete copy of the published results call 1-800-387-0123. In Toronto call 416-447-4971.

INTERPLAK®
HOME PLAQUE REMOVAL INSTRUMENT

NOW WITH INTERCHANGEABLE BRUSH HEADS!

Somerset House
74 Gervais Drive, Don Mills, Ontario M3C 1Z3

© Dental Research Corporation 1987



The **INTERPLAK®** oral hygiene device is acceptable as an effective cleaning device for use as part of a program for good oral hygiene to supplement the regular professional care required for oral health.
Council on Dental Materials, Instruments and Equipment
American Dental Association

CHEMOTHERAPEUTIC PRODUCTS

for the control of supragingival dental plaque and gingivitis

*Dr. F. Michael Eggert
Chairman*

CDA Committee for Consumer Products Recognition

Introduction to the CDA Guidelines

Chemotherapeutic control of gingivitis took a significant step forward when the antiseptic chlorhexidine was first used intra-orally (Løe & Schiott, 1970; Flotra et al, 1972; O'Neil, 1976). Almost two decades of subsequent clinical research have helped to define not only why chlorhexidine is effective in the control of gingivitis, but also its limitations and side effects (Løe, 1986). Chlorhexidine digluconate has been available to the general dental profession in Great Britain for 10 years in the form of an oral rinse (0.2%) and a dental gel (Corsodyl rinse and gel, ICI Industries, UK). As a result, numerous Canadian dentists have had clinical experience in the UK with the therapeutic use of chlorhexidine.

Over the past twenty years chlorhexidine has become a standard against which the clinical effectiveness of other agents used for reduction of gingivitis can be judged. The increasing level of understanding of the scientific basis for chemotherapeutic control of gingivitis has been recognised by the Council on Dental Therapeutics of the American Dental Association. The ADA has published a set of guidelines for acceptance of chemotherapeutic products for control of supragingival dental plaque and gingivitis (ADA, Bulletin of the Council on Dental Therapeutics, 1986).

The Committee for Consumer Products Recognition of the Canadian Dental Association requested an assessment of the ADA guidelines from each of the Canadian dental faculties. Following this assessment, the committee, first under the Chairmanship of Dr. R.Y. Barolet and

now under mine, has developed a set of Canadian guidelines for chemotherapeutic control of gingivitis. The CDA guidelines conform not only to the ADA guidelines, but also incorporate concepts tested through extensive Canadian and European clinical experience with chemotherapeutic agents used in the control of gingivitis.

The Committee for Consumer Products Recognition of the Canadian Dental Association has taken the position that dental plaque is not a disease, but gingivitis is a reversible inflammation of gingival tissues (Løe, Theilade & Jensen, 1965) which can benefit from therapeutic control. Therefore, clinical efficacy in control of gingivitis is the primary criterion by which chemotherapeutic agents will be evaluated under the new guidelines.

Both the CDA and the ADA guidelines for products to control gingivitis exclude from consideration the issue of the control of periodontitis. Periodontitis is not a reversible condition. There is extensive scientific clinical evidence that presently available topical chemotherapeutic agents, including chlorhexidine, are NOT successful in the treatment of periodontitis. Therefore, recognition by the CDA of agents to control gingivitis will exclude any claim related to periodontitis. The Committee for Consumer Products Recognition of the Canadian Dental Association wants to make it perfectly clear that no product recognized under the gingivitis control guidelines can lay claim to any clinical benefit other than simply control of gingivitis.

The CDA guidelines differ in at least one significant respect from the ADA guidelines. The CDA guidelines have set an actual target for reduction of gingivitis to a clinically acceptable level. Evaluation of the presence or absence of superficial sul-

cular bleeding is to be included as a sensitive measure of gingivitis (Meitner et al, 1979; Engelberger et al, 1983; Greenstein, 1984).

European clinical research has shown that if a patient has good mechanical plaque control, a chemical plaque control agent provides additional benefit, but if a patient has poor mechanical plaque control, existing chemical plaque control agents provide reduced chemotherapeutic benefit (Joyston-Bechal et al, 1979; Asikainen et al, 1984). For this reason, we require a record of the level of patient home care during the course of the study.

All groups receiving active agents are to be compared against a group (or groups) receiving the appropriate placebo(s) throughout the course of the study. This concept was supported at the Conference on Clinical Trials in Periodontal Diseases held in Chicago in 1985. The CDA guidelines also stress that the patient is to be the unit of statistical analysis and reporting (Imrey, 1986). This approach is to ensure that any findings of chemotherapeutic benefit will be applicable to all patients likely to use the product.

I wish to thank the Board of Governors of the Canadian Dental Association for their support of the new Guidelines. I also wish to thank the members of the Committee for Consumer Products Recognition for their work and Ms. J. Forsythe and her staff for their co-ordination of our activities.

Highlights of the CDA Guidelines

We wish to stimulate research and commercial development of home care agents capable of producing clinically acceptable reduction in gingivitis when used as a

part of a program involving both normal home care and ongoing professional care.

The CDA guidelines do not describe criteria for evaluating the management of periodontitis or other periodontal diseases, nor do they describe the evaluation of products strictly for the mechanical removal of plaque.

Both over-the-counter and prescription-

only products, such as mouthrinses and toothpastes containing active chemotherapeutic agents, will be considered using these guidelines.

Copies of the Complete Guidelines will be available through the Library of the Canadian Dental Association, upon request, and will also be made available to University Libraries in Canada.

A partial listing of the information that the Committee for Consumer Products Recognition will require in order to evaluate a chemotherapeutic product:

- The characteristics of the study population should represent the typical product user. A log must be kept of mechanical plaque control measures.
- Two studies conducted by independent investigators will be required; each study is to be of a minimum of six months' duration.
- Active products should be used in a normal regimen in comparison with placebo control or, where applicable, an active control. Patient assignment to study groups should be at random.
- The periodontal index (Russell's Index or equivalent) must be reported for each study group at the initiation of the study. (This indicates the type of patients in which agents have been tested and ensures a balanced composition of study groups.)
- Plaque and gingivitis scoring and microbiological sampling should be conducted at baseline, six months and at an intermediate time. Measurement of gingivitis is to include a measure of superficial sulcular bleeding. The basic unit of statistical analysis and reporting is to be the patient.

- At the end of the study the active patient group must differ significantly from the placebo group AND also its level of gingivitis must have been reduced to at least a mean gingival index of 0.75 per patient when measured on the scale of Löe and Silness. (All patients must have clinically significant gingivitis at the beginning of the study).
- Microbiological sampling should estimate plaque qualitatively in terms of microbial species in addition to indices which measure plaque quantitatively.
- Microbiological and clinical monitoring should ensure that there is no overgrowth of periodontal or other oral pathogens or opportunistic organisms in the mouth during the course of the study.
- The active chemotherapeutic agent in a product must be identified along with its mode of action.
- The toxicological profile of products should include carcinogenicity and mutagenicity assays in addition to generally recognized tests for drug safety. The main reason for study drop-outs must be recorded and reported.

Role of the Health Protection Branch:

Health and Welfare Canada is responsible for drug safety via its Health Protection Branch. The Committee for Consumer Products Recognition of the CDA does not consider any product which has not already received approval from HPB. HPB approval can be recognized by either a DIN or a GP number that is printed on the packaging of an approved product.

HPB has direct control of all drug packaging and consumer advertising of drugs in Canada. As a result, HPB controls both the CDA seal and the wording of the CDA statement on products recognized by the Committee for Consumer Products Recognition.

Control of drug advertising to the medical, dental and related professions has been delegated by HPB to the Pharmaceutical Advertising Advisory Board. Δ

Dr. Eggert is a professor, Division of Periodontics, Department of Stomatology, Faculty of Dentistry, University of Alberta, Edmonton, Alberta. T6G 2N8

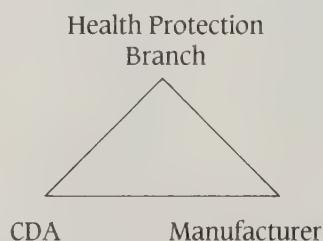
References

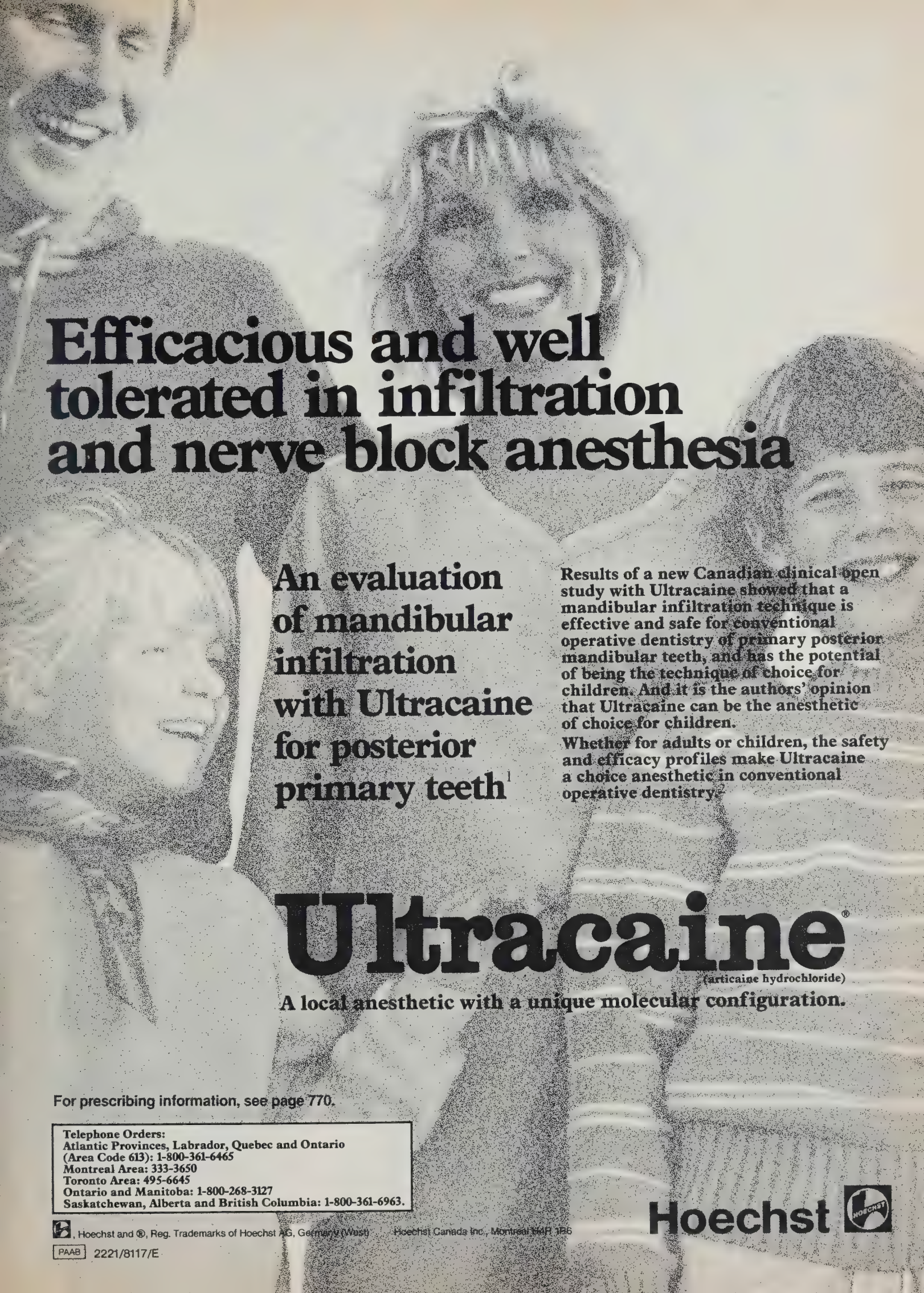
1. Asikainen, Sandholm, L., Sandman, S. and Ainamo, J. Gingival bleeding after chlorhexidine rinses with or without mechanical oral hygiene. *J. Clinical Periodontology* 11:87-94, 1984.
2. Engelberger, T., Hefti, A., Kallenberger, A., Rateitschak, K.-H. Correlations among papillary bleeding index, other clinical indices and histologically determined inflammation of gingival papilla. *J. Clinical Periodontology* 10:579-589, 1983.
3. Flotra, L., Gjermo, P., Rolla, G. and Waerhaug, J. A 4-month study on the effect of chlorhexidine mouthwashes on 50 soldiers. *Scandinavian J. Dental Res.* 80:10-17, 1972.
4. Greenstein, G. The role of bleeding upon probing in the diagnosis of periodontal disease. *J. Periodontol.* 55:684-688, 1984.
5. Imrey, P.B. Considerations in the statistical analysis of clinical trials in periodontitis. *J. Clinical Periodontology* 13:517-528, 1986.
6. Joyston-Bechal, S., Smales, F.C. and Duckworth, R. The use of a chlorhexidine-containing gel in a plaque control programme. *British Dental Journal* 146:106-111, 1979.
7. Löe, H. (Editor) Chlorhexidine in the prevention and treatment of gingivitis. *J. Periodont. Res. Supplement* 16, 1986.
8. Löe, H. and Schiott, C.R. The effect of mouthrinses and topical application of chlorhexidine on the development of dental plaque and gingivitis in man. *J. Periodont. Res.* 5:79-83, 1970.
9. Löe, H., Theilade, E. and Jensen, S.B. Experimental gingivitis in man. *J. Periodont.* 36:177-187, 1965.
10. Meitner, S.W., Zander, H.A., Iker, H.P. and Polson, A.M. Identification of inflamed gingival surfaces. *J. Clinical Periodontology* 6:93-97, 1979.
11. O'Neil, T.C.A. The use of chlorhexidine mouthwash in the control of gingival inflammation. *Brit. Dent. J.* 141:276-280, 1976.

Proposed CDA Statement:

"(Product name) contains (ingredient) which is, in our opinion, an effective agent that helps to control only simple superficial inflammation of the gums due to plaque above the gumline, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."

Regulatory Structure for Drug Products:





Efficacious and well tolerated in infiltration and nerve block anesthesia

An evaluation of mandibular infiltration with Ultracaine for posterior primary teeth¹

Results of a new Canadian clinical open study with Ultracaine showed that a mandibular infiltration technique is effective and safe for conventional operative dentistry of primary posterior mandibular teeth, and has the potential of being the technique of choice for children. And it is the authors' opinion that Ultracaine can be the anesthetic of choice for children.

Whether for adults or children, the safety and efficacy profiles make Ultracaine a choice anesthetic in conventional operative dentistry.

Ultracaine®

(articaine hydrochloride)

A local anesthetic with a unique molecular configuration.

For prescribing information, see page 770.

Telephone Orders:
Atlantic Provinces, Labrador, Quebec and Ontario
(Area Code 613): 1-800-361-6465
Montreal Area: 333-3650
Toronto Area: 495-6645
Ontario and Manitoba: 1-800-268-3127
Saskatchewan, Alberta and British Columbia: 1-800-361-6963.



Hoechst and ®, Reg. Trademarks of Hoechst AG, Germany (West)

Hoechst Canada Inc., Montreal MAR 1986

PAAB 2221/8117/E

Hoechst



Specialty Features

PIT AND FISSURE SEALANTS:

One More Time

*C.E. Moore, 2nd year dental student
G.S. Jackson, DDS, DDPH*

Introduction

The concept of filling pit and fissures, the most caries susceptible surfaces of the teeth, with a bonded resin was first advocated almost thirty years ago by Buonocore.¹ Pit and fissure sealant materials have undergone numerous trials since their introduction and virtually every study has shown them to be effective in preventing caries in pit and fissures.¹⁻⁴ In 1984 at the N.I.D.R. Consensus Conference⁵ it was concluded that pit and fissure sealants are 100 per cent effective in reducing occlusal caries so long as the sealant remains firmly adherent to the enamel surface and that after five years a 50 per cent reduction can be expected. In fact, sealants are the single greatest preventive measure in dentistry today.⁶

Yet, despite the proven effectiveness of sealants they still remain to be underutilized by many dental practitioners.^{4,6} It has been postulated that part of the reason for the slow adoption of sealant

materials by the practicing profession is due to the poor results obtained in the early clinical trials when both the material and the technique were not well understood.⁶

The purpose of this article is to review the effectiveness of pit and fissure sealants and the how, when and where to use them with the aim of encouraging dental practitioners to adopt and use them routinely.

Sealant Effectiveness

For a sealant to be effective, it first of all must be retained and whether or not a sealant is retained is dependent upon the technique of application, the type of sealant material and the morphology of the tooth surface to which it is applied.

The earliest sealant was cured by ultraviolet light and demonstrated retention rates ranging from 40 – 82 per cent after one year to 10 – 40 per cent after five years. The somewhat ambivical and disappointing results of the earlier ultra-

violet light cured materials were caused by a lack of understanding of the exactness of the technique and difficulties with intensity of the earlier UV – light systems.^{2,6} More recent studies utilizing autopolymerizing and visible light cured sealant materials have repeatedly demonstrated retention rates of 95 – 100 per cent after one year and at least 50 per cent after six years.^{7,8}

As is to be expected, a sealant's effectiveness closely parallels its retention rates with the newer materials demonstrating a 90 – 95 per cent caries reduction after one year to at least 50 per cent after six years.^{7,8} In an ongoing pit and fissure sealant program on Prince Edward Island, Romcke has demonstrated similar results to the above. In addition, the rate of sealant failures in the P.E. Island program is only 1 – 3 per cent per year. If we are prepared to replace 3 per cent of all sealants placed in any one year then it is reasonable to expect a 95 per cent reduction of pit and fissure caries. The evidence of the effectiveness of sealants is conclusive. Sealants are effective.

Yet, despite the effectiveness of sealants, many dental professionals are reluctant to use them because they are afraid of sealing in caries and because they believe amalgam to be a better restoration.^{4,6} Kandelman and others^{10,11} have shown that if known caries involving only the occlusal surface is purposely sealed over, the caries does not progress and most of the lesions become sterile. Should the sealant be lost, Silverstone and others^{12,13,14} have demonstrated that the tooth is no more caries susceptible than it was prior to sealant placement and, in fact, it is probably less likely to become carious than it previously was because of the resin tags which remain imbedded in the enamel and also because the tooth will remineralize within 48 hours.

It is unfortunate that sealants have been compared to amalgam because while one is a preventive material the other is a restorative material.¹ Regardless, the comparison has and is often made and, consequently, has to be addressed. Bailet¹⁵ has shown that 22 per cent of all amalgams placed will be redone within two years. In addition, Boyd¹⁶ has shown that one third of a dentist's practice time is spent replacing "old" amalgams. Dennison¹⁷ has demonstrated that the time required to place and maintain an amalgam and a sealant over seven years is similar and, that if there is an advantage, the advantage favors sealants over amalgams. In addition, numerous¹⁵⁻¹⁷ studies have demonstrated that the average amalgam lasts four to eight years, a length of time similar to that of sealants. In fact, the only difference between amalgams and sealants is that amalgam replaces tooth structure destroyed by caries while sealants prevents the destruction from ever occurring in the first place.

Should the comparison be made and is it valid? The answer to both is a resounding 'No'. Sealants are not only effective but they are also safe.

How, when and where

Whether or not a sealant is effective at preventing occlusal caries is dependent upon it remaining to be firmly adherent to the enamel surface to which it is applied. If the sealant is lost, it is most likely to be lost within the first six to twelve months following its application. It is believed that sealants which are lost during this time are lost because of faulty technique. Although the technique is by now well understood, it is worth reviewing at this time because meticulous attention to detail is absolutely essential.

Technique

The surface of the tooth selected for sealant placement should first be cleaned with a slurry of pumice and water.¹³ Although some investigators have recommended cleaning the tooth surface with a toothbrush at present, the long term effectiveness of this approach is unknown and consequently at the present time is not endorsed. It is important that neither a prophylactic paste or a paste containing fluoride be used as they will compromise the acid etching procedure and therefore the sealant's effectiveness.

Etching

Immediately following cleaning, the tooth is washed and dried and the occlusal surface is then etched with a 30-50 per cent solution of phosphoric acid, liquid or gel for 60 seconds. Although there have been reports that etching time can be reduced to as little as ten seconds, at the moment this is not recommended because there are as yet no long term results available. Etching produces microscopic porosities in the enamel into which the resin extends, forming tags which attach it firmly to the tooth surface.¹⁸ After the recommended sixty seconds, the tooth surface is washed for thirty seconds to remove all the etchant, then dried. A properly etched tooth has a dull frosted appearance.¹⁴

It is essential that the tooth after etching remains dry and free of any moisture contamination until the resin is applied and cured. The tooth can usually be kept dry with cotton rolls and suction. If not, then a rubber dam must be used.¹⁴ If the surface does become contaminated it must be re-etched for an additional ten seconds.

Application and curing

Irrespective of which type of sealant is used, care must be taken when applying the material to avoid incorporating air bubbles, to ensure that the entire etched surface is covered and that excess material does not flow interproximally. After applying the material, it is cured according to the manufacturer's directions. Once the material has been fully cured, it is carefully examined with an explorer to make certain that all the pits and fissures are covered, that there are no air bubbles, all excessive material has been removed and that it is firmly adherent to the enamel surface.^{19,20}

As with all other forms of dental care, it is important that sealants be thoroughly checked at subsequent recall appointments to ensure that it is still firmly adherent and that no sealant material has

been lost.²¹ If it is necessary, sealant material can and should be added at this time.

To seal or not

Not all susceptible occlusal surfaces will become carious and consequently not all occlusal surfaces need to be sealed. But which to seal and which not to seal? The decision of which to seal and which not to seal must be made on an individual patient and an individual tooth basis. Individuals with no previous caries experience and well coalesced pits and fissures are unlikely to benefit from the placement of sealants.¹¹ However, individuals with open and or sticky pit and fissures irrespective of their previous carious experience should have all such pit and fissures covered, both primary molars and permanent bicuspid and molars.¹⁴ If still in doubt, seal! The old adage of wait and see no longer applies. Teeth with caries on proximal tooth surfaces should not be sealed.¹⁰ In addition to the above, the following must be taken into consideration:

1. Patient behavior must be manageable to allow for adequate isolation and moisture control.
2. The patient should have the benefit of fluoride, either systemic, supplemental, professionally applied topicals or fluoridated toothpastes.
3. The patient should be on a regular recall program with sealants being provided as part of an overall comprehensive program.^{1,22}

Summary and Conclusions

Sealants have been conclusively shown to be a safe, efficient and effective method of preventing pit and fissure caries and as such should be routinely used by all dental health care personnel who are interested in preventing the ravages of dental caries. There is no valid reason why any practitioner should not be recommending pit and fissure sealants to each of their patients who require them. Given the choice, individuals prefer sealants.

The adoption of sealants by the profession has been slow but more and more dentists are beginning to adopt them as a routine part of their preventive practice. In order to achieve universal acceptance and usage the profession must:

1. Educate the public as to the effectiveness and benefits of sealants for their oral health.
2. Promote the use of sealants by the profession by offering continuing education programs which provide the practitioner with the opportunity of being kept

current with the literature and with the opportunity for 'hands-on' experience.

3. Ensure that dental and dental hygiene students are taught to use sealants whenever they are indicated. Δ

References

1. Ripa, L.W., The Current Status of Pit and Fissure Sealants, *JCDA*, 51:367-377, 1985.
2. Stephen, K.W. and Strang, R., Fissure Sealants: A Review, *Community Dental Health*, 2:149-156, 1986.
3. Houpt, M. and Shez, Z., A Conservative Occlusal Restoration Using Fissure Sealant for Prevention, 3(6):445-447, 1982.
4. Leverett, D.H. et al., Use of Sealants in the Prevention and Early Treatment of Carious Lesions: Cost Analysis, *JADA*, 106:55-58, 1983.
5. National Institute of Health, Consensus Development Conference Statement on Dental Sealants in the Prevention of Tooth Decay, *JADA*, 108:233-236, 1984.
6. Gift, H.C. and Freio, R.A., Sealants: Changing Patterns, *JADA*, 112:391-392, 1986.
7. Sveen, O.B. and Jensen, O.E., Two Year Clinical Evaluation of Delton and Prisma-Shield, *Clinical Preventive Dentistry*, 8(5):9-11, 1986.
8. Mertz-Fairhurst, E.J. et al., A Comparative Clinical Study of Two Pit and Fissure Sealants: Six Year Results in Augusta, GA, *JADA*, 105(8):237-239, 1982.
9. Feldman, B.N., Update: Pit and Fissure Sealants, *The Dental Letter*, 4(5):1, 1986.
10. Handelman, S.L. et al., Two Year Report on the Sealant Effect on Bacteria in Dental Caries, *JADA*, 83:967-970, 1987.
11. Handelman, S.L., Effect of Sealant Placement on an Occlusal Caries Progression, *Clinical Preventive Dentistry*, 4(5):12-16, 1982.
12. Silverstone, L.M., Fissure Sealants In Preventive Dentistry, Ed. Silverstone L.M. 97-132.
13. Stiles, H.M. et al., Comparative Results of Application by a Dentist or Dental Auxiliaries, Adhesive Sealant Clinical Trials, *Clinical Preventive Dentistry*, 3(3):8-11, 1976.
14. Isler, S.L. and Daline, S., Clinical Application of Pit and Fissure Sealants, *Compendium of Continuing Education*, 24:207-211, 1981.
15. Bailet, H.L. et al., A New Intermediate Dental Outcome Measure: Amalgam Replacement Rate, *Medical Care*, 17:780, 1979.
16. Boyd, M.A. and Richardson, A.S., Frequency of Amalgam Replacement in General Dental Practice, *Journal Canadian Dental Association*, No. 10:763-766, 1985.
17. Dennison, J.B. and Straffon, C.H., Clinical Evaluation Comparing Sealant and Amalgam After Seven Years, School of Dentistry, University of Michigan, Ann Arbor, Michigan.
18. Gwinnett, A.J., The Scientific Basis of the Sealant Procedure, *Journal of Preventive Dentistry*, 3(2):15-28, 1976.
19. Callanen, V.A. et al., Developing a Sealant Program: The Massachusetts Approach, *Journal Public Health Dentistry*, 46(3) 141-146, 1986.
20. Budner, V.M., Dentist Use Patterns for Pit and Fissure Sealants and Topical Fluorides, *Journal Dental Education*, 50(11):656-660, 1986.
21. Reprint: Sealants, The Dental Advisor, *Oral Health*, 77(1):23-24, 1987.
22. Ripa, L.W., Rationale of the Technique and Historical Review, Occlusal Sealing, *Journal American Society Preventive Dentistry*, 73:31-39, 1973.

FINISH SUBGINGIVAL MARGINS, SAFELY



NEW TGE™

(tissue guard end cutting) Diamonds

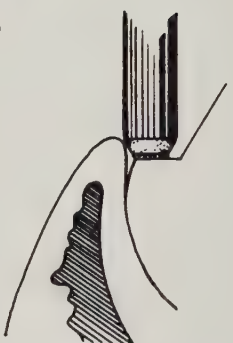
with **premier**

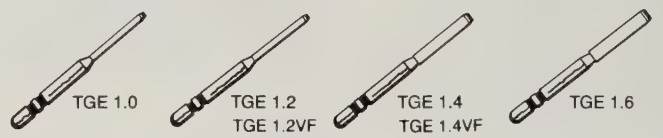
Two Striper®

Longer Lasting Diamonds for Every Purpose

A safe and smooth finish.
The TGE is recommended for use in extended Flat Shoulder preparations as required for full ESPE VISIO-GEM, full porcelain or Cerestore® crowns.

The TGE enables the practitioner to impart a smooth finish on the floor of the preparation, without lacerating gingival tissue or creating undercuts around the cervical line. The diamond particles are contained only on the tip—not on the sides or bevelled corners of the instrument.





These TWO STRIPER Diamond Instruments are made with a patented bonding system which fuses diamond crystals permanently to the one piece hardened stainless shank. This results in faster, cooler cutting, eliminates typical stripping and peeling of diamond crystals, and significantly extends the instrument's working life as much as 4 times more than other dental instruments.



P.B.S.™ Note the fused bond directly to the diamond, channels for clearance, and exposure of diamond for cutting.



Electroplated—Note the build-up of metal plating and lack of true bond with the diamond crystal.

™PBS and TGE are trademarks of Abrasive Technology, Inc.
*TWO STRIPER is a registered trademark of Abrasive Technology, Inc.
*Cerestore is a registered trademark of Johnson and Johnson Co.

Available through
your dealer



Premier Dental Products Co., Box 111, Norristown, PA 19404, USA
Distributed in Canada by
Premier Dental (Canada), Ltd., Scarborough, Ont. M1W 3K5, Canada

Specialty Features

THE CASE FOR FLUORIDATION:

A comparison between Toronto and Montreal

A. John Lee, DDS, MPH, D.GRT*
Fred Goettler, MASc, MSc**
Toronto, Ontario

ABSTRACT

The City of Montreal has recently conducted public hearings on the issue of community water fluoridation. Coincident with this have been suggestions that community water fluoridation is not cost-effective or appropriate. This paper compares Canada's two largest cities, fluoridated Toronto and non-fluoridated Montreal, in terms of dental decay rates, and cardiovascular and neoplastic mortality rates to demonstrate that community water fluoridation is both appropriate and cost-effective.

The drinking water of the Municipality of Metropolitan Toronto has been fluoridated since 1963. The water system serves more than two million, four hundred thousand (2,400,000) individuals residing in the six communities which comprise Metropolitan Toronto.

Essentially, two sets of data are presented. One which looks at the steady and remarkable improvement in the dental health of Toronto children since fluoridation.¹ We have taken the opportunity to compare Toronto data with Montreal.² The other set of mortality data is for Toronto before and after fluoridation. Again, we will compare with Montreal. The dental data presented are from the City only, not Metropolitan Toronto. However, the figures are approximately the same in the other five communities. The mortality data are for Metropolitan Toronto.

Figure 1 shows the Decayed, Missing and Filled teeth (DMF) per child. The DMF rate is an excellent way to view the dental

history of a child (e.g. a higher decayed, missing and filled teeth rate per child represents more unnecessary infection, decay, pain and tooth loss in those children).

As you will note in Figure 1 there has been a continuous decline in the DMF rate of Toronto children since it fluoridated. Montreal's children in comparison have a DMF rate similar to Toronto before fluoridation.

Let us look at nine-year-olds. In 1964 the DMF rate in Toronto was 2.1. By 1986 it had declined to 0.7 (a 67 per cent reduction). In comparison Montreal's eight-year-olds had a DMF rate of 1.7. Since nine-year-olds have a higher DMF rate than eight-year-olds, it is obvious that in 1984 the DMF rate for Montreal nine-year-olds was as poor as nine-year-olds in Toronto prior to fluoridation.

Looking at 11-year-olds where we have data for both cities, the DMF rate in Toronto has dropped from 4.0 in 1964 to 1.4 in 1986, a 65 per cent reduction. In comparison 1984 Montreal data show a DMF rate of 3.7. Again, very close to Toronto before fluoridation. Finally, a look at the DMF rates for 13-year-olds shows that in Toronto it has declined from 5.7 in 1964 to only 2.3 in 1986, again a dramatic 60 per cent reduction. By contrast Montreal's 12-year-olds have a DMF of 4.6. Plotting the rise of the DMF rate of children in Montreal as they age (1.7 for eight-year-olds to 4.6 for 12-year-olds) it is safe to predict that the 13-year-olds in Montreal will have a DMF rate of approximately 5.5, which is very similar to Toronto 13-year-olds prior to fluoridation.

Figure 2 looks at the dental health of

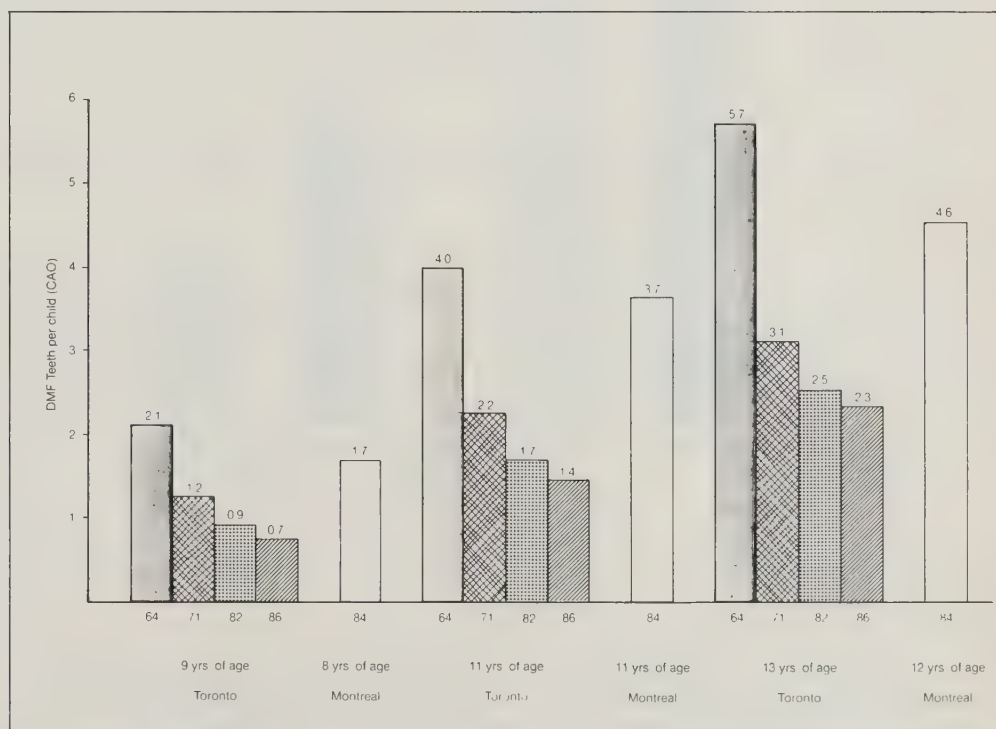


Figure 1 Decayed missing filled teeth per child.

* Dr. Lee is Manager, Dental Services, Downtown/Eastern Health Areas, Department of Public Health, City of Toronto.

** Fred Goettler is a biostatistician with the Department of Public Health, City of Toronto.

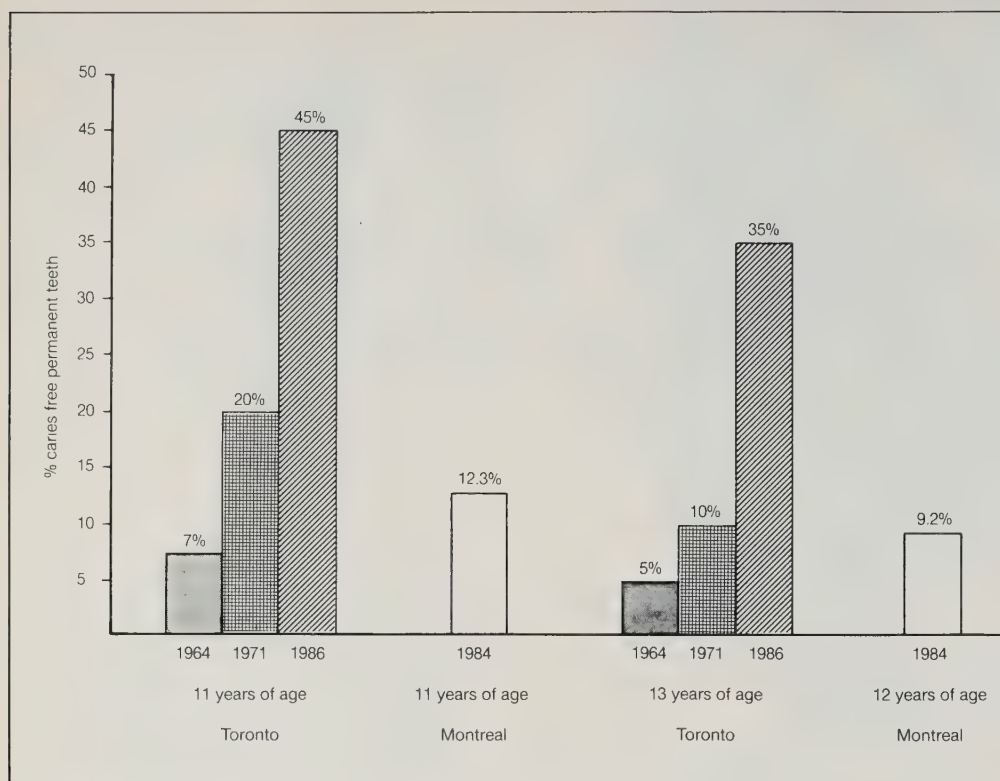


Figure 2 Per cent caries free permanent teeth.

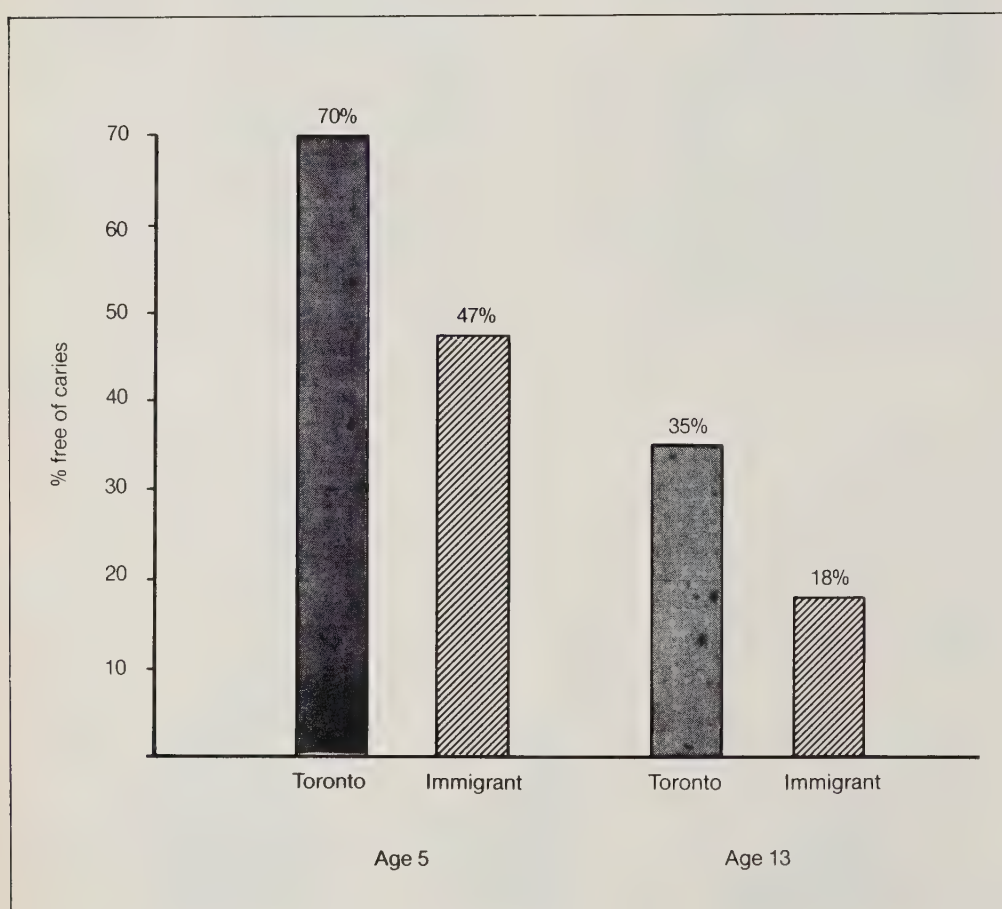


Figure 3 Per cent free of caries age 5 and 13 by birthplace.

children from a different perspective: the percentage of children who have never had decay in their permanent teeth. This figure gradually drops until the mid-teens

and then levels off. What this figure tells us is the percentage of children who have never suffered pain from dental decay.

Looking at 11-year-olds we see a won-

derful story: in 1964 only 7 per cent of Toronto's 11-year-olds had never had decay. By 1984 had risen to 45 per cent or nearly half. In Montreal in 1984 by comparison only 12 per cent had never had decay. Again, this figure is close to Toronto before its fluoridation. Among 13-year-olds in Toronto the story is even better. In 1964 only 5 per cent had never had decay while in 1986, it had risen to 35 per cent, a seven-fold increase. In Montreal among the 12-year-olds, only 9 per cent had never had decay. Figures for Montreal 13-year-olds would be lower and so again the figures for Montreal are similar to Toronto before its fluoridation.

It would also be helpful to compare within Toronto. Annually, approximately 30 per cent of all immigrants to Canada settle in Metropolitan Toronto. Consequently, our statistics reflect children born in Toronto, who have had the advantage of fluoridated water and children born elsewhere many of whom have not had the advantage of fluoridated water.

Looking at children who have never had decay in either primary teeth or permanent teeth, we find significant differences. In 1985 among five-year-olds, 70 per cent of those born in Toronto never had decay while only 47 per cent of immigrant children were in this situation. Among 13-year-olds, the difference is even more apparent. Fully twice as many children born in Toronto never had decay compared to the children born elsewhere (35 per cent vs. 18 per cent).

From a different perspective, the mean number of teeth per child requiring restoration, we see a similar situation. Among five-year-olds only 0.4 tooth per child is decayed in Toronto-born children, while it is three times as high (1.2) per child born elsewhere. For 13-year-olds, a similar situation prevails. For Toronto-born children it is only 0.3 tooth per child while it is double that (0.6) per child born elsewhere. It should be noted that the primary reason for the significant decline among children five to 13 years of age, born elsewhere, is that they have benefitted from the extensive treatment program operated by the City of Toronto Department of Public Health, which is targeted to high risk children.

What these figures combine to demonstrate is the remarkable effect that fluoridated water has in improving the dental health of children. Whether comparing Toronto-born children with children born elsewhere living in Toronto, or comparing the children in two cities, the fact is obvious: Fluoridation works and it works remarkably well.

You may ask: "What does it cost? Surely, these benefits have a price!" The annual fluoridation budget is approximately \$700,000 per year and the population of Metropolitan Toronto is approximately 2,400,000. Therefore, the cost per person per year is a mere 29 cents. When one considers the cost of dental care today, not to mention the joy of a painless, infection-free mouth, 29 cents is indeed very low.

The next section will deal with mortality data. It has been suggested that fluoridation is associated with higher rates of mortality for a) diseases of the circulatory system and b) neoplasms. To address this issue we have looked at directly standardized mortality rates for these two causes for residents of the City of Toronto for the period 1951-1986.

Figure 5 illustrates that the circulatory rates (per 100,000 population) have dropped from 600 in 1951 to 177 in 1986. Furthermore, this downward trend has been relatively consistent over the entire period.

The mortality rates for neoplasms shown have remained relatively stable over the same period.

It is interesting to note when Toronto began its fluoridation program (i.e. 1963 which is shown with an arrow on the abscissa). The downward trend in circulatory mortality rates is similar both before and after the introduction of fluoridation in Toronto. Therefore, there does not appear to be any suggestion in the data of a link between the introduction of fluoridation and mortality rates for diseases of the circulatory system or neoplasms.

The final section compares the mortality rates of Toronto and Montreal. This data comes from the Mortality Atlas of Canada. The age standardized mortality rates are based on data for the period 1966-1976 and are standardized via the direct method using the 1971 Canadian population as the standard. The smallest breakdown we can get for Toronto is the Census district known as Toronto Metropolitan which we then compare with the census division Isle de Montréal.

Table 1 shows that for cancers (all sites) for both males and females the Montreal mortality rates are approximately 15 and 17 per cent higher than the Toronto rates.

For disease of the circulatory system **Table 2** shows that again the Montreal rates are approximately 11 and 17 per cent higher in Montreal for males and females respectively.

The last figure (**Figure 6**) graphically displays these age standardized mortality rates. Again we see that the age stand-

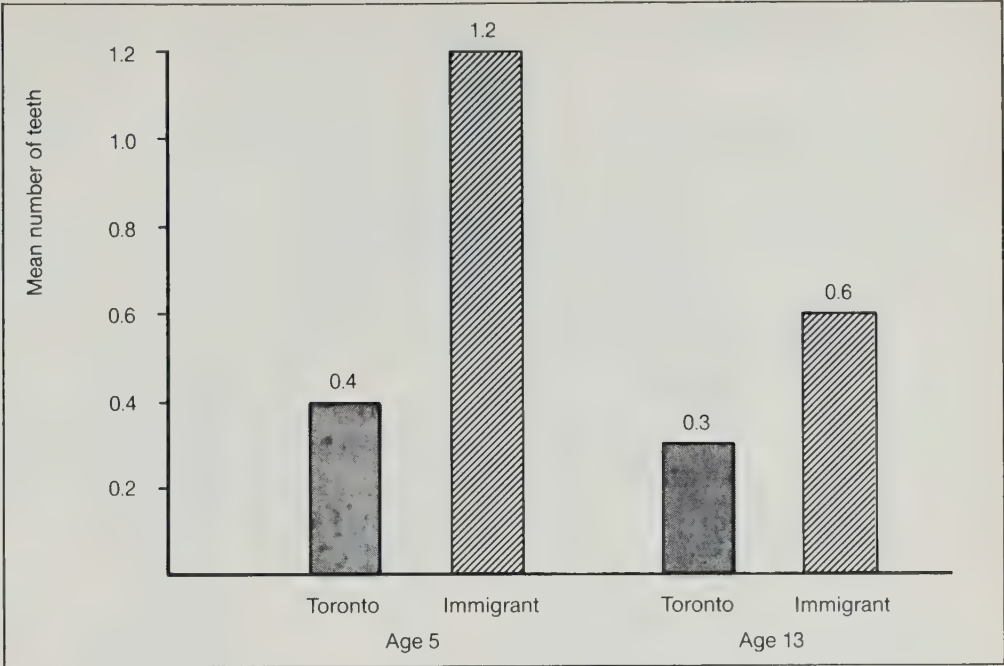


Figure 4 Teeth needing restoration age 5 and 13 by birthplace.

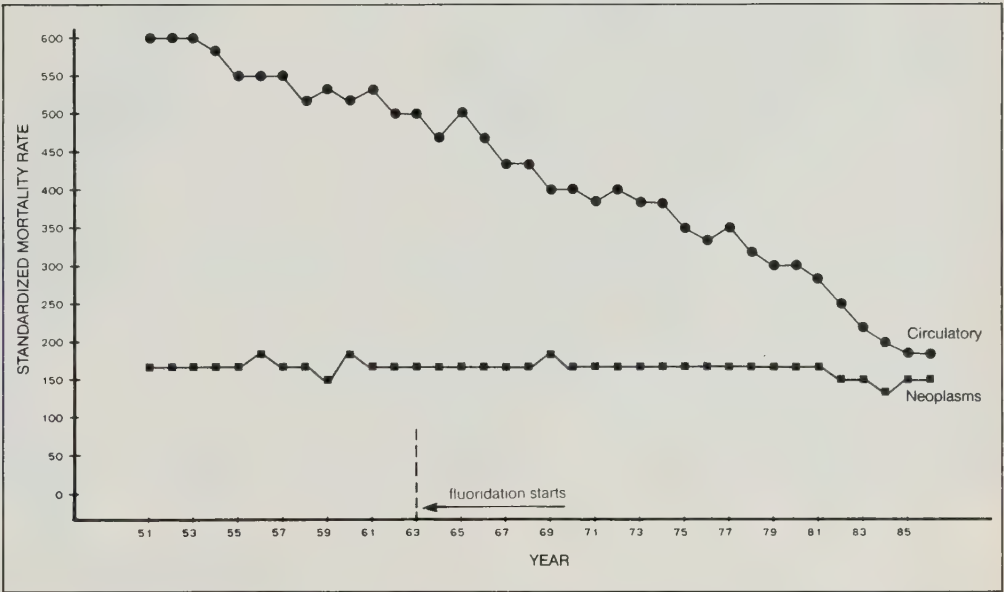


Figure 5 City of Toronto, 1951-1986. Age and sex standardized mortality rates per 100,000 (Ontario 1976 standard population) deaths due to neoplasms & circulatory disease.

TABLE I			TABLE II		
Age Standardized Mortality Rates by Census Divisions All Cancer Sites			Age Standardized Mortality Rates by Census Division Diseases of Circulatory System		
	Toronto Metropolitan	Île-de-Montréal		Toronto Metropolitan	Île-de-Montréal
male	190.1	218.8	male	449.6	498.2
female	120.5	141.6	female	250.6	292.2
per 100,000 population			per 100,000 population		
Source — Mortality Atlas of Canada Volume 1 — Cancer 1980 (data 1966-76)			Source — Mortality Atlas of Canada Volume 1 — general mortality (data 1966-76)		

ardized mortality rates are consistently lower in Metropolitan Toronto than in the Isle de Montréal.

To sum up, the comparison data demonstrates that Toronto has benefitted significantly by fluoridating its water. This has occurred at an extremely low cost, without ill-effects to its citizens. Δ

References

1. City of Toronto Department of Public Health, Annual Survey, 1986.
2. Personal communication with Dr. M. Tannenbaum, Montreal, P.Q.
3. Statistics Canada and Mortality Atlas of Canada, vol. 1, 1980.
4. Statistics Canada; Mortality Atlas of Canada, vol. 2, 1980.

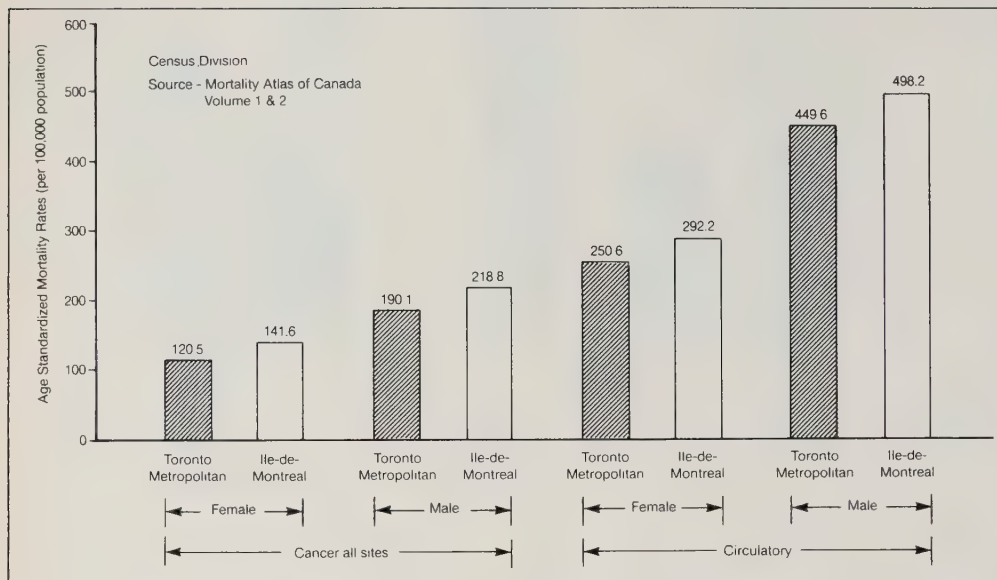


Figure 6 Age standardized mortality rates for the census divisions of Metropolitan Toronto & Île de Montréal.

DON'T WAIT UNTIL IT HURTS



If it takes pain to get you to go to the dentist, you're asking for trouble. Dental problems usually exist long before there's any noticeable discomfort. See your dentist for preventive checkups.

DENTAL HEALTH
Good For Life

CANADIAN DENTAL ASSOCIATION

Early birds who "Double-Up" earn bigger bucks!

Why wait till March 1st, 1989 to make your 1988 RSP contribution? "Double Up" on your contributions by making a \$7,500 deposit for 1988 PLUS your \$8,500 deposit for 1989 in January 1989.

By doubling up once and then continuing to contribute early each year over 20 years you can earn \$57,000* more, over 30 years \$148,000 more.

*based on an annual contribution of \$8,500 at 10%.



CDA RSP

For further information or answers to any RSP question, call CDSPI's Retirement Services Department, anytime, toll-free:

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807
1-800-268-3411 Ontario and Québec, except Area Code 807
497-7117 Metro Toronto

Administered by CDSPI, 2 Lansing Square, Suite 600, Willowdale, Ontario M2J 4Z3.

*"I'd like to see an amalgam alloy
with recognized clinical performance."*



Presenting **phasealloy**
a second generation dispersion-phase alloy

- desired compressive strengths
- low creep value
- gamma II phase eliminated after 3 or 4 days
- positive pack condensability
- smooth carving characteristics
- marginal integrity

phasealloy[®]
another top clinical performer

Now available exclusively
from Hoechst Canada Inc.

*Reg. Trademark of: Phasealloy Dental Products, Division of Wykle Research, Inc., U.S.A.



and Hoechst, Reg. Trademarks of Hoechst AG, Germany (West)

Authorized user of trademark: Phasealloy[®]
2228/8127/E

Hoechst Canada Inc., Montreal H4R 1R6

Hoechst



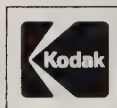


Intraoral or extraoral, the products and people you can count on come from Kodak. Why take a chance on anything less?

Ever since there were dental x-rays, the products you could count on for quality came in a yellow box. It's still that way today, and you know it'll be that way tomorrow as well. And if you do have a problem, your dealer in Kodak products is nearby, ready, willing and able to help. There's even a toll-free phone line direct to Kodak's own dental x-ray experts: call 1-800-465-6325, ext. 5147 (or, in Toronto, 766-8233, ext. 5147). Kodak dental x-ray products. Anything less is taking a chance.

**DON'T
TAKE CHANCES
WITH YOUR
PICTURES.
KODAK**

The new vision of Kodak



BIRTHPLACE OF PAINLESS PARKER REVISITED

Peter M. Pronych, BA, DDS, MS

"In Parts I (JCDA 51:72-74, Jan 1985) II (JCDA 51:289-290, April 1985) and III (JCDA 51:665-667, Sept 1985) highlights of the colourful career of the so-called renegade of Dentistry, Dr. Painless Parker were traced from his birthplace in New Brunswick in 1872 to his death in California in 1952. What remains of the Parker Era in New Brunswick? What influence did Painless Parker have on Dentistry? To better understand the answers to these questions one must return to his birthplace and reflect in the quiet, serene surroundings of that village on the picturesque shores of the Bay of Fundy. . . ."

If you were to take the narrow, winding country road eastward out of Saint John, New Brunswick, after twenty-four miles you would eventually come across a small, insignificant road sign. It points to a small collection of scattered houses near the shore of the Bay of Fundy. The houses are gathered on the banks of an inlet now overgrown with marsh grass. Only a narrow strip of water is visible. The focal point of this village is a small, faded red covered wooden bridge spanning that narrow expanse of water. The freshly painted black and white sign over the entrance of the quaint covered bridge proclaims this to be Tynemouth Creek — the birthplace of Painless Parker — seen as it is now, 114 years after his birth. The village is such a tiny gathering of homes, that it doesn't even rank recognition on most road maps.



Peter M. Pronych, Division of Pediatric Dentistry, Dalhousie University, Halifax.

It was here in the last decade of the 1800's that Dr. Edgar Randolph alias "Painless" Parker took his red wagon and his travelling dentistry show westward across the Canadian frontier — spreading the word and presence of Dentistry. After numerous encounters with the law, he eventually reached Alaska before hastily returning to the East Coast and New York. The influence of his carnival style of Dentistry which began in New Brunswick was felt by the public, the legislator and the dental practitioner.

Let's return to Tynemouth Creek.

When one crosses the covered bridge and goes up the hill on the dusty winding

road past some houses, one sees grassy fields and shrubs on both sides of the road. This dusty road was the main street of the bustling, thriving village of Tynemouth Creek in the 1800's. On the grassy fields once stood the homes and businesses during Painless Parker's boyhood days. This village during its prime had a population of 125 souls. It had banks, stores, a school, businesses associated with the sale of lumber and a very busy ship building industry during the era of wooden ships.

Nothing remains now, except several scattered homes, empty grass fields and small groves of trees. Gone is the barn on the hill where young Edgar, the Aviator, climbed onto the roof with a dozen pigeons tied to his belt. Gone is the rock pile at the foot of the barn where he landed amidst feathers, birds, noise and bruises. Gone is the small country school house where young Edgar, the Business Man and Entrepreneur, negotiated the sale of its yard for a quarter to a school friend. Gone is the drugstore, where 10-year-old Edgar, the young Casanova, attempted to elope with the Pharmacist's 10-year-old daughter. Gone are the lumber trade and ship building on the shores of Tynemouth Creek. Gone are the people who were Edgar's first patients — they are only but shadows which have melted into the by-gone days of history.

Except for some lobster fishing, the once bustling village now lies quiet and serene.

The home where he was born and raised was originally located inland in a

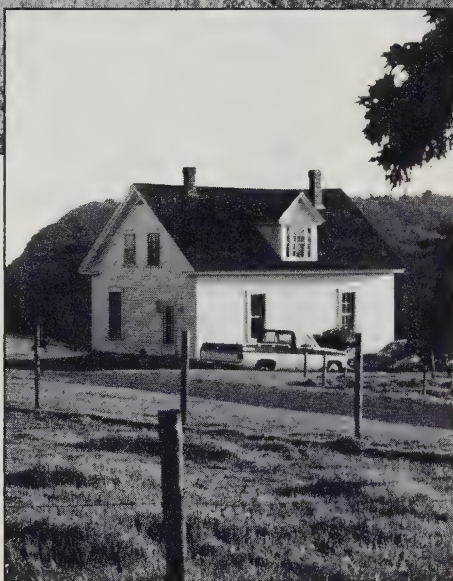


△
Tynemouth Creek, New Brunswick, as it is today,
116 years after Painless Parker's birth.

Home where Painless Parker was born, in 1872,
in Tynemouth Creek, New Brunswick.▷



Painless Parker at 80, six months before his
death, in 1952. He is wearing his bullet-riddled
hat, punctured during his early days in Canada's
West, and a necklace of 357 teeth, which he
extracted in a single day.



wooded area about a mile away from the
coast. The home was moved to the shore,
modernized and now overlooks the Bay
of Fundy. Descendants of the Parkers
occupy the home.

Edgar, a restless young man in his
teens, was sent by his devoutly religious
Baptist family across the Bay of Fundy to
the Annapolis Valley of Nova Scotia. It
was here that he was to become a 'man
of the cloth' at Acadia University. The
University is still in existence today. Its
beautiful stately campus on the side of a
hill overlooks the valley. It is no longer a
Baptist nor religious university, rather it
offers a wide range of general courses and
is particularly renowned for its music
education.

After being expelled in disgrace from
Acadia University, the downcast young
Edgar returned to the sea-faring city of
Saint John, New Brunswick, to try his
hand at business. But the love of advent-
ure and the sea soon attracted him and
from here he set sail for those far away
places. The harbour at Saint John has
changed from Edgar's day — the old
wooden wharfs which lent character to
the city have been replaced by practical,

grey concrete. The majestic square rig-
gers and graceful schooners have given
way to the large unimaginative drab
deep sea container carrying ships, the
freighters and the tankers of the twen-
tieth century.

The Museum of New Brunswick con-
tains only one original artifact from
Edgar's era in that Province — a bill board
poster. One side of the faded poster
announced his travelling Dentistry show
and expounded on his virtues to extract
teeth painlessly. Interestingly, on the
reverse side of the bill board was a verse,
written in a strange religious style.

Further eastward along the coast, six
miles from Tynemouth Creek is the larger
village of St. Martin's. It was here, that
a repentant Edgar tried once again to
become a preacher. He attended the
Baptist Seminary. It was a magnificent,
huge, Victorian-style edifice. An old
photograph is all that remains of the Old
Baptist Seminary. It was demolished after
being gutted by a fire which left it struc-
turally unsound. The young impetuous
Edgar was asked to leave the Baptist
Seminary and his dream of becoming a
preacher disappeared for the final time.

It was to St. Martin's again that the
young dignified Dr. Edgar Randolph
Parker returned after attending the Dental
College in Philadelphia. Another old pho-
tograph shows the hardware store with a
barbershop on the right side of the build-
ing. As a respectable dentist, Dr. Parker
set up his first dental office in this barber-
shop alongside the barber. This building
has long since given way to newer build-
ings erected on the site. The main street
remains relatively unchanged from
Edgar's time, except for the trees which
line the road. They are now taller and
more massive. Some of the old stately
homes which belonged to the well-to-do
sea-faring families during the era of sail-
ing and wooden ships are still present.

The original Baptist church which Edgar
attended when he was a fledgling dentist
in St. Martin's has been replaced by a
plain, white building. On this site in the
original church, Edgar marvelled at the
ability of the preacher to strike fear into
his flock with sermons about the horrify-
ing bonfire awaiting all sinners. It was
here that he patterned his own dental ser-
mon about the horrifying bonfire awaiting
those who neglected their teeth.

Edgar left St. Martin's in the late
1800s, assumed the alias — Painless
Parker, rented a wagon, painted it red,
put a Morris Barberchair on it, hired
musicians and set off for the county fairs
and on his adventures. It was here in
New Brunswick that his often condemned

style, his particular philosophy and promotion of Dentistry were conceived.

The fall of the year is a beautiful season in New Brunswick. The symbolism of fall, when applied to life, can serve as a background when reflecting on the accomplishments of Painless Parker.

Do you think of Painless Parker
. . . when you hear soft soothing background music in a dental office? He used music to attract crowds as well as muffle the screams of the unfortunate patients who happened to be part of his public performance during his travelling dentistry show,
. . . when you walk into a shopping mall or into a large department store and see a dental office? He initiated the concept of placing dental offices where high volume traffic was located and where he could attract the most patients,

. . . when you see a large multiple chair dental office offering the services of many generalists and specialists? He began this concept when he lost his own licence to practice in the 1920s and had to rely on other dentists to carry on his practice. He attempted to offer, as an incentive to patients and as a convenience to the public, more dental services in his clinics.

. . . when you hear, read or see the benefits of Dentistry being discussed and promoted to the public? He practiced the art of promoting dentistry as part of his sermon during his travelling Dentistry show. His intentions, however, may have been misdirected.

Even more important was the fact that through his methods whether right or wrong, Dentistry was taken out of the confines of the dental parlors and made

more accessible to the public.

From his birthplace on the East Coast until the sunset of his life on the West Coast, the history of Painless Parker is still very controversial.

Was he a scoundrel, a charlatan, an opportunist, a sage or a prophet? Maybe, just maybe, his style of dentistry was misplaced in history. What would be the reaction of the public, the legislator and the Dental Profession to Dr. Painless Parker's style of dentistry if he were to begin his practice of dentistry now? Δ

"This paper was presented to the American Academy of History of Dentistry in Florida in October, 1986. On the same program, Dr. Arden Christen of Indiana University presented the first part entitled 'Edgar Randolph 'Painless' Parker: The 'P.T. Barnum' of Dentistry.'"

Dr. Peter M. Pronych, the author, is Associate Professor, Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia, B3H 3J5

MAKE US WORK FOR YOU

CDSPI is your organization, offering you insurance, retirement and information services. Owned and run by dentists on a non-profit basis, CDSPI's only mandate is to service your needs in these areas. So call today for more information and put us to work for you!

EXPERTISE

ACCESSIBILITY

COMMITMENT



CDSPI

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario except Area Code 807

497-7117 Metro Toronto

NEW

ANTI-PLAQUE **Viadent**[®]

Control and protection
where it counts.



Sanguinarine: A unique anti-plaque ingredient.

Sanguinarine helps to inhibit the growth of plaque microorganisms shown to be related to periodontal disease and caries, while not affecting the bacteria normally associated with healthy tissues.¹

1 Dzink, J.L., and Socransky, S.S. Comparative in vitro activity of sanguinarine against oral microbial isolates. Antimicrobial agents and chemotherapy. 27:663-665, 1985.

Extensive research demonstrates efficacy against plaque and gingivitis.

Sanguinarine has been tested against plaque and gingivitis in well controlled studies* conducted at major universities and research centres around the world.

In over 25 published articles and abstracts, Viadent was shown to be most effective in plaque control and prevention of gingivitis.

*Available upon request

- > Clinically shown antimicrobial activity that lasts up to 2 hours.
- > Clinically shown to inhibit plaque formation.
- > Clinically shown to reduce and prevent gingivitis.



**Recommend Anti-plaque Viadent.
Your patients will feel the difference.**

For prescribing information, see page 770.



Frank W. Horner Inc.
Dental Products Division.
5485 rue ferrier
montréal québec
H4P 1M6

PAAB
CCPP

Your lack of coverage is showing!

- Could you maintain your current standard of living on \$2,800 a month of Long Term Disability benefits?
- Are your office overhead expenses below \$3,500 a month?
- Could you replace the contents of your office, including leasehold improvements, for only \$129,000?
- Are your gross monthly billings to patients below \$21,500 per month?

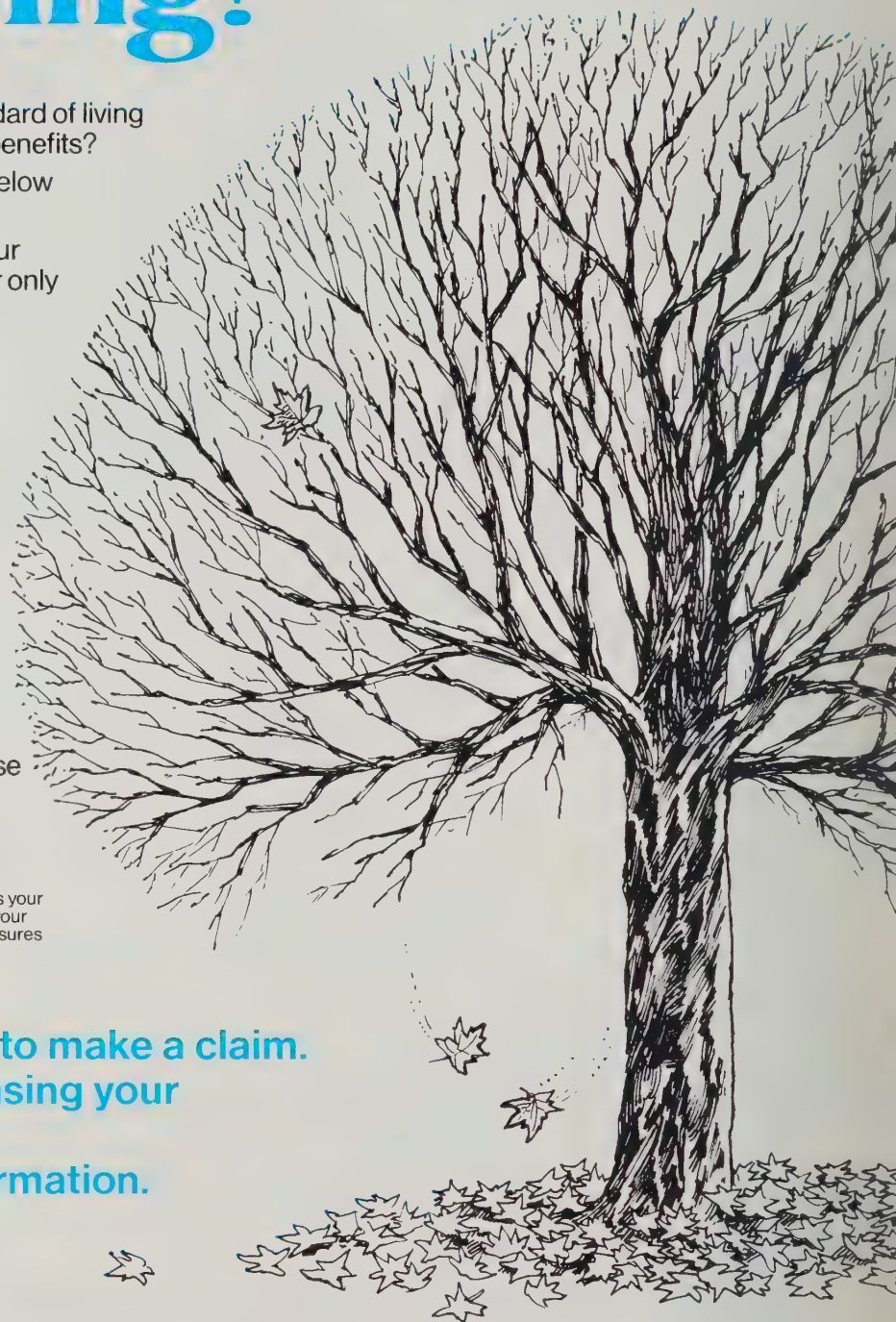
If you answered "No" to any of these questions, you may be underinsured.

The above figures are the average coverages held by CDIP participants on December 31, 1987 for Long Term Disability, Office Overhead Expense, Office Contents and the monthly equivalent of the average Practice Interruption Insurance*.

These national average figures are relatively modest when considering today's standard of living and current business expenses. If your coverage is at or below these averages, you may be exposing yourself to the risk of a heavy financial loss in a claim situation.

*It is suggested that Practice Interruption coverage be at least 4 times your maximum monthly billings to patients. You can claim up to 25% of your coverage per month. Therefore the national coverage of \$86,000 insures \$21,500 of gross billings per month for 4 months.

**Don't wait until you have to make a claim.
Cover up today by increasing your
insurance protection.
Call CDSPI for more information.**



For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario **except** Area Code 807

497-7117 Metro Toronto

Programs co-sponsored by your national and provincial dental associations and administered by CDSPI, 2 Lansing Square, Suite 600, Willowdale, Ontario, M2J 4Z3

This material has been approved by our consultants/brokers and insurers.

A Review of Differential Diagnosis of DENTAL FLUOROSIS AND NON-FLUORIDE ENAMEL DEFECTS

Oliver O. Osuji, BDS, Dip. Paedodont., MSc
Gordon Nikiforuk, DDS, MSc, FRCD(C)
James L. Leake, DDS, DDPH, MSc
Toronto

ABSTRACT

This paper reviews amelogenesis of normal enamel and pathogenesis of defective enamel formation. It emphasizes how difficult it is to identify, with certainty, the etiology of some enamel lesions. Rigid clinical criteria which will more clearly differentiate between fluorosis and other non-specific enamel opacities should be developed.

RÉSUMÉ

Le présent article passe en revue le processus normal de la formation de l'émail ainsi que la pathogénie impliquée dans la formation d'un émail défectueux. L'auteur souligne particulièrement la difficulté d'identifier avec certitude, l'étiologie de plusieurs lésions de l'émail. Des normes clinique rigides devraient être établies afin de pouvoir mieux différencier fluorose et autres lésions opaques non spécifiques.

Few reports have been published on the problem of distinguishing between dental fluorosis and localized enamel opacities. The two types of lesion are characterized by a non-specific qualitative and quantitative defect in enamel tissue formation which results from a metabolic injury to the ameloblasts during tooth development. Many enamel lesions are non-specific and, hence, defy a definitive diagnosis unless supported by a clinical history and/or corroborative laboratory findings using enamel biopsies.

Recent reports indicate that the prevalence of fluorosis and fluorosis-like opacities is increasing among children.¹ It is essential to clearly differentiate fluorosis and non-fluoride lesions, especially if the purpose of the investigation is to monitor the effect of systemic fluoride exposure by the presence of dental fluorosis in a community. In epidemiological surveys, the difficulty of diagnosis can be a major problem as the investigator is limited to

the clinical manifestation of the defects and often has no benefit of the dental or medical history of the child.

The objective of this paper is to review amelogenesis of normal enamel and the non-specific response of the enamel-forming ameloblasts to metabolic insults. The clinical manifestations of such metabolic injuries permit some differential diagnoses of enamel opacities and these are emphasized.

Enamel Formation

Much is known about the development of enamel, but much less is known about the molecular mechanism of fluorosis and non-fluoride enamel defects. Enamel is produced by ameloblast cells and the development of normal enamel is morphologically described as occurring in three stages. These should be seen as a continuum, namely:

1) The formative stage comprises the morphogenesis and differentiation of ameloblast cells and the secretion of the

organic matrix having a protein content of about 20 per cent. Two types of protein "amelogenin" and "enamelin" have been isolated from developing bovine enamel tissue.² The synthesis of the full thickness of enamel is accomplished during this stage. The newly synthesized organic matrix has a calcium concentration of 5 to 10 per cent which suggests it as a requirement for synthesis of the enamel matrix.³

2) During the calcification stage, inorganic salts are deposited in the developing organic matrix, and qualitative and quantitative changes occur in the organic component of the enamel during this stage. The inorganic component of enamel is increased at the expense of the organic components and water. The proline-rich amelogenin is removed during this stage and the aspartic-glutamic acid-rich enamelins remain as the protein of mature enamel.

3) The maturation stage occurs as the ameloblasts undergo ultra-structural changes associated with the selective removal of organic material and water.⁴ The quantitative changes involve the growth of apatite mineral crystals and loss first, of protein and then water. This process begins pre-eruptively and continues post-eruptively with the addition of more minerals and results in loss of porosity.⁵ The organic components of mature human enamel are less than 0.5 per cent by weight compared with the mineral components which are 96 per cent.⁶

Ameloblasts persist in a viable form and mediate important functions during the pre-eruptive maturation phase until the time of tooth eruption. During this late phase, gradients of concentration are established for several of the mineral constituents of enamel. The concentration of fluoride, zinc and lead is highest at the surface layers of enamel and is almost halved at the dentine-enamel junction.⁷⁻⁹ Conversely, elements such as sodium, magnesium and calcium have their highest concentration at the dentine-enamel junction. Fluoride, zinc and lead incorporated in the hydroxyapatite crystal make the enamel less soluble in water and acid.

Defective Enamel Formation

Enamel hypoplasia is the incomplete or defective tooth structure. It results from a quantitative defect in matrix formation. Enamel hypocalcification and hypomaturation result from inadequate mineralization of the matrix. However, the demarcation between these two processes, matrix formation and mineralization, is

not so distinct. Thus, a defective matrix will not mineralize in a normal manner; similarly, a normal matrix will not mineralize normally in the absence of physiological concentrations of calcium, as in hypocalcemia.

Defects of amelogenesis occur because ameloblasts are particularly sensitive to changes in their environment. Minor physiological changes during the stages of tooth development, such as nutritional deficiencies or metabolic disturbances, may affect the ameloblast function and elicit changes in the enamel structure which can be detected histologically and/or clinically.¹⁰ Once the enamel has calcified, no defect can be produced. Depending on the location of the defect on the teeth and with the knowledge of the chronologic development of the primary and permanent dentition, it is possible to determine the approximate time of the injury.

Causes of Enamel Defects

Enamel defects have been observed in association with many known health factors, such as prematurity (Fig. 1), gastroenteritis, neonatal tetany and independently of any known factors. However, there has been little effort in proposing a unified etiology for hypoplasias. Recently, Nikiforuk and Fraser,¹¹ on the basis of studies of children with vitamin D-dependency rickets (VDDR) and X-linked hypophosphatemic rickets (XLH), hypothesized that hypocalcemia which affects ameloblast synthesis of enamel proteins is the main etiological mechanism.

Exanthematous diseases such as chickenpox, measles and mumps, previously believed to cause enamel hypoplasia, have been disproved as direct causes.¹²

Tetracycline therapy has also been stated to cause enamel hypoplasia but studies indicate that the underlying disease state (e.g. chronic renal failure and cystic fibrosis) for which the tetracycline was administered may be the explanation for the observed hypoplasia rather than the tetracycline.¹³ Tetracycline, however, is incorporated into the calcifying enamel matrix, resulting in yellow-gray pigmentation of the mature enamel in patients whose underlying disease may have required extensive tetracycline therapy.

Genetic Aspects of Enamel Defects

Genetic factors such as occur in individuals with amelogenesis imperfecta cause enamel defects. Amelogenesis imperfecta can be classified as hypoplastic, hypocalcific or hypomature, based on clinical,

radiographic and histologic appearance, and mode of inheritance.¹⁴ These clinical conditions are usually easily differentiated from other hypoplasias on the basis of clinical histories and examination.

Fig. 2 illustrates the hypoplastic type of amelogenesis imperfecta.

Dental Fluorosis

Dental fluorosis is a qualitative and, in the more severe forms, quantitative defect of the enamel formation produced by high concentrations of fluoride during tooth development. Fluorosis does not appear to be caused by the actual amount of fluoride deposited in enamel, but rather by an increase in the concentration within the ameloblasts during enamel formation. The clinical manifestation of fluorosis ranges from white flecks, detectable only by the trained eye at low fluoride concentrations, to gross loss of outer enamel surface at high levels of fluoride ingestion. A mild case of dental fluorosis is illustrated in Fig. 3. The exact mechanism of the injury is not known.

Fluoride probably exerts its effect on enamel formation by one or a combination of several mechanisms.¹⁵ Among these pathways may be an effect of fluoride on ameloblasts during the secretory phase resulting in diminished matrix production, a change of matrix composition or changes in ion transport mechanisms. During the maturation phase, the effect on ameloblasts may be a diminished withdrawal of protein and water or a defective transport of mineral ions. Fluoride toxicity may also affect the nucleation and crystal growth in all stages of enamel formation.

Dental fluorosis may also be an indirect result of the effect of fluoride on calcium homeostasis at a local, cellular level. This hypothesis has been advanced since hypocalcemia is known to be associated with enamel defects. While serum fluoride concentrations that induce fluorosis do not produce generalized hypocalcemia, it is not known whether fluoride in concentrations that may be found in cells and cellular fluid in juxtaposition to mineralizing areas can induce a localized hypocalcemic effect. Larsen et al.,¹⁶ suggested that low plasma levels of calcium and phosphate lead to reduced protection against ingestion of elevated amounts of fluoride.

Indices of Dental Fluorosis

The indices developed to measure fluorosis include those of Dean,¹⁷ Moller,¹⁸ Thylstrup and Fejerskov¹⁹ and Horowitz et al.²⁰ All the fluorosis indices presume that the etiology of the defect is excess

fluoride. Their diagnostic criteria are based on the clinical appearance of the enamel and the extent of the surface affected by the lesion. To differentiate defects of non-fluoride origin, the fluorosis indices employ the descriptive criteria developed by Russell.²¹

Indices of Non-Fluoride Opacities

Al-Alousi et al.,²² developed an index based only on descriptive criteria. An epidemiological index of developmental defects of dental enamel (DDE index) has been proposed, also based on the clinical appearance of the lesion.^{23,24} The proponents of the DDE index argue, among other things, that classifications based on etiological considerations are premature because only a few defects can be assigned an etiology.²⁴ Thus, the DDE index classified enamel defects according to the following:

- 1) Type: normal, opacity, hypoplasia, discoloration and combination of defects.
- 2) Number and demarcation of defects: single, multiple and diffuse.
- 3) Location on the tooth surface: gingival, incisal one-half, occlusal and cuspal.

Prevalence of dental fluorosis

Several prevalence studies utilizing the fluorosis indices or their modifications have been published. In a study involving 7- to 17-year-olds, the prevalence in non-fluoridated communities was as high as 14 per cent in 10-year-olds and 33 per cent in 14-year-olds in fluoridated communities.¹ The Dean's index¹⁷ used in that study was modified in order to avoid over-estimation of the prevalence.

Leverett¹ concluded that dental fluorosis has become 3.5 times more prevalent in non-fluoridated communities and twice as prevalent in fluoridated communities. Driscoll et al.,²⁵ using similar criteria, reported that 3 per cent of children residing in communities with negligible fluoride concentrations in their drinking water and 14.6 per cent of those residing in optimal fluoride communities had fluorosis. Driscoll and his colleagues concluded that "findings do not support the contention that definite increases in the prevalence of fluorosis are occurring in communities with negligible and optimal water-fluoride concentrations because of increased total fluoride consumption from various sources." Although the communities studied and the conclusions on the current level of fluorosis differed, there was no doubt that the condition being assessed was fairly common among children.

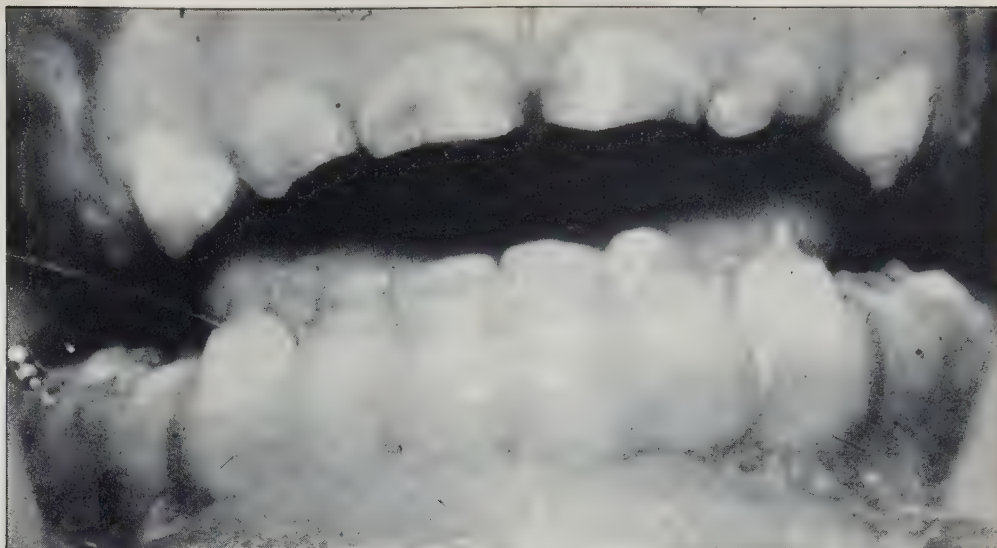


Fig. 1. Clinical illustration of enamel hypoplasia in the primary teeth of a child. The predilection of the lesions to the neonatal area of the maxillary teeth denotes injury to the ameloblasts associated with prematurity. The incisal edge area of the lower incisor, in this case, was completed earlier, hence it was not affected. All areas of primary teeth including the tip of the cuspid forming at this period were affected.



Fig. 2. Intraoral photograph of maxillary and mandibular arches showing the local hypoplastic type of amelogenesis imperfecta. Note the hypoplasia in the maxillary central incisors which appear as horizontal bands.

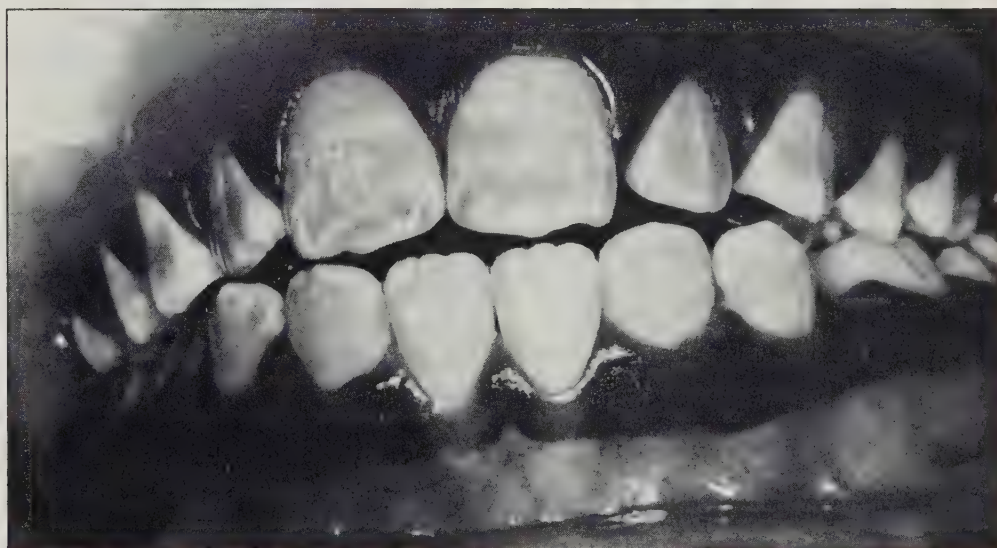


Fig. 3. Intraoral photograph showing a moderate case of dental fluorosis. The surfaces of the permanent teeth exhibit marked opacities and appear chalky white.

Twelve-year-old Swedish children residing in an area with 0.2 ppm, but with early exposure to systemic fluorides, were examined for fluorosis using the Thylstrup and Fejerskov index.²⁶ Forty-five per cent exhibited fluorosis, and localized non-specific opacities were recorded in 40 per cent.

Prevalence of developmental enamel defects

The DDE index was used to examine nine-year-old New Zealand children.²⁷ Among children who were exposed to systemic fluoride, 71 per cent had some form of enamel defect compared to 63 per cent of those who used non-fluoridated water. Diffuse opacities were present in 28 per cent of children exposed to systemic fluoride and in 16 per cent of those who were not exposed.

In South Wales, 49 per cent of 11- and 12-year-olds had developmental enamel defects recorded using the DDE index.²⁸ Over two decades ago, 25 to 33 per cent of children had enamel opacities involving their permanent teeth.²⁹ Thus, both fluorosis and fluorosis-like lesions are fairly common among children in both fluoridated and non-fluoridated areas.

Differential Diagnosis

The defects resulting from metabolic injury during tooth development may present similar clinical pictures that make a dogmatic claim of an etiologic agent in the absence of a medical history fraught with errors. Without the aid of a medical or dental history, considerable difficulty may be experienced during the diagnosis of fluorosis. It is not certain if the reaction of the ameloblasts to excessive fluoride is specific or different from reaction to other forms of injury. Thylstrup and Fejerskov¹⁹ described the accentuation of the perikymata in fluorosis as if this feature is not observed on other forms of generalized diffuse opacities.

Russell²¹ and Moller³⁰ outlined clinical differences between fluorosis and non-fluoride enamel opacities. The cardinal points used to diagnose the non-fluoride opacities are:

- i) they are usually centred in smooth surfaces of affected teeth;
- ii) any tooth may be affected and often singly;
- iii) often round or oval in shape;
- iv) clearly differentiated from adjacent normal enamel;
- v) gross hypoplasia may or may not be present; when present enamel surface appears etched and is rough to explorer;
- vi) detected most easily under strong

light on line of sight perpendicular to tooth surface.

Differentiation between fluorosis and other forms of hypoplasia is relatively easy in the case of localized hypoplasia such as the type of lesion that is seen on the permanent teeth following trauma or infection to the primary predecessor. Time specific events such as prematurity, birth trauma and infancy hypocalcemia can also cause defects that can be distinguished because of their distribution, localization and configuration on the tooth surface (Fig. 1). The severe type of fluorosis with generalized white patches (Fig. 3) is easier to diagnose than the mild or very mild types. In areas with high levels of fluoride in the drinking water, the very severe form of fluorosis appears as loss of main part of enamel with change in anatomical appearance of the tooth surface and this can be easily diagnosed. More generalized, non-specific, systemic events produce defects that are harder to diagnose. This type of non-specific defect is more common in low fluoride areas. Some recent investigators were prompted to base the diagnosis of fluorosis more upon the history of fluoride intake than on the conformity of the clinical appearance of the teeth to Dean's index.³¹

Horowitz³² rightly pointed out that at times during epidemiological surveys of dental fluorosis, even experienced examiners occasionally find defects that are extremely difficult to classify. However, his suggestion that the number of persons with defects that are difficult to identify as either fluoride or non-fluoride opacities is a small percentage of the total sample in a typical survey is open to question. Since both dental fluorosis and localized enamel defects are common,^{1,25,28} and quite similar in appearance,^{21,30,33} the chance of diagnosing non-fluoride opacity in error as fluorosis is quite high. An inappropriate differential diagnosis thus raises the percentage of the sample that is misclassified as either fluorosis or non-fluoride opacity. Misclassification may explain some of the conflicting evidence about the current prevalence of dental fluorosis among children residing in fluoridated and non-fluoridated communities. The difference may be partly due to other bias such as the different examining conditions and the fact that the fluoride concentration of the water supply of the areas studied was known to examiners.

Most surveys are undertaken because of the need to monitor the effect of systemic fluoride intake. The applicability of the DDE index is limited if the information

on the prevalence and severity of fluorosis cannot be easily extracted from a study in which the index was utilized. This leaves an investigator with no other choice but to use one of the available fluorosis indices. In a recent study to compare the fluorosis indices, those of Thylstrup and Fejerskov¹⁹ and Horowitz et al.²⁰ were found to be more suitable than Dean's index for diagnosing and determining the severity of fluorosis on the surfaces of teeth of children in an area with drinking water fluoridated just below the optimal level.³⁴

It is necessary to emphasize that the criteria developed by Russell and Moller should be strictly applied in any investigation of fluorosis. It is as important to exclude those who do not have fluorosis as it is to categorize the individual, tooth or tooth surface according to the severity of fluorosis.

There remains a need to develop criteria that assist in the practical classification of enamel opacities in such a way as to distinguish their etiologies. The criteria should take into consideration the nature of the condition (e.g., localized or systemic), its severity and the age dependency of the factor or factors associated with its occurrence. Whenever possible, the medical history should aid in relating dental findings to the overall clinical picture. Δ

The authors wish to thank Dr. E. Larochelle for translation of the Abstract into French and Ms. J. McGhie for assistance during preparation of the manuscript.

Dr. Osuji is a staff member, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ont. M5G 1G6.

Dr. Nikiforuk is professor of preventive dentistry, Faculty of Dentistry, University of Toronto; and senior staff of The Hospital for Sick Children, Toronto.

Dr. Leake is associate professor and head, Department of Community Dentistry, Faculty of Dentistry, University of Toronto.

Reprint requests to Dr. Osuji.

References

1. Leverett, D.H. Prevalence of dental fluorosis in fluoridated and non-fluoridated communities — a preliminary investigation. *J Public Health Dent* 46:184-187, 1986.
2. Termine, J.D., Torchia, D.A. and Conn, K.M. Enamel matrix: structural proteins. *J Dent Res* 58:773-778, 1979.
3. Eastoe, J.E. Enamel protein chemistry — past, present and future. *J Dent Res* 58:753-763, 1979.
4. Glick, P.L. Patterns of enamel maturation. *J Dent Res* 58:883-892, 1979.
5. Deakins, M. Changes in the ash, water, and organic content of pig enamel during calcification. *J Dent Res* 21:429-435, 1942.
6. Frank, R.M. Tooth enamel: current state of the art. *J Dent Res* 58:684-693, 1979.

7. Isaac, S., Brudevold, F., Smith, F.A. et al. Solubility rate and natural fluoride content of surface and subsurface enamel. *J Dent Res* 37:254-263, 1958.

8. Osborn, J.W. and Ten Cate, A.R. Advanced Dental Histology. Dental Practitioner Handbook No. 6. Bristol, Wright, 1983, pp. 118-136.

9. Brudevold, F. and Soremark, R. Chemistry of the mineral phase of human enamel. In: Structural and Mineral Organization of Teeth. Vol. II. A.E.W. Miles, ed. New York, Academic Press, 1967, pp. 247-277.

10. Ten Cate, A.R. Oral Histology — Development, Structure and Function. St. Louis, Mosby, 1985, pp. 183-197.

11. Nikiforuk, G. and Fraser, D. The etiology of enamel hypoplasia in children — a unifying concept. *J Int Assoc Dent Child* 13:1-11, 1982.

12. Lundstrom, R., Lysell, L. and Berghagen, N. Dental development in children following maternal rubella. *Acta Paediat* 51:155-160, 1962.

13. Shusterman, S. and Fellers, F.X. The prevalence of enamel defects in childhood nephrotic syndrome. *J Dent Child* 36:435-440, 1969.

14. Stewart, R. and Prescott, G. Oral Facial Genetics. St. Louis, Mosby, 1976, pp. 151-226.

15. Fejerskov, O., Thylstrup, A. and Larsen, M.J. Clinical and structural features and possible pathogenic mechanisms of dental fluorosis. *Scand J Dent Res* 85:510-534, 1977.

16. Larsen, M.J., Kirkegaard, E. and Poulsen, S. Pattern of dental fluorosis in a European country in relation to fluoride concentration of drinking

water. *J Dent Res* 66:10-12, 1987.

17. Dean, H.T. Fluoride and dental health. Washington, D.C., American Association for the Advancement of Science, 1942.

18. Moller, I. Dental Fluorose og Caries. Copenhagen, Rhodos Publications, 1965.

19. Thylstrup, A. and Fedjerskov, O. Clinical appearance of dental fluorosis in permanent teeth in relation to histologic changes. *Community Dent Oral Epidemiol* 6:315-328, 1978.

20. Horowitz, H.S., Driscoll, W.S., Meyers, R.J. et al. A new method for assessing the prevalence of dental fluorosis — the tooth surface index of fluorosis. *JADA* 109:37-41, 1984.

21. Russell, A.L. The differential diagnosis of fluoride and non-fluoride enamel opacities. *J Public Health Dent* 21:143-146, 1961.

22. Al-Alousi, W., Jackson, D., Crompton, G. et al. Enamel mottling in a fluoride and in a non-fluoride community: a study. *Br Dent J* 138:9-15 and 56-60, 1975.

23. Pindborg, J.J. Aetiology of developmental enamel defects not related to fluorosis. *Int Dent J* 32:123-134, 1982.

24. FDI Technical Report No. 15. An epidemiological index of developmental defects of dental enamel (DDE Index). *Int Dent J* 32:159-167, 1982.

25. Driscoll, W.S., Horowitz, H.S., Meyers, R.J. et al. Prevalence of dental caries and dental fluorosis in areas with negligible, optimal, and above-optimal fluoride concentrations in drinking water. *JADA* 113:29-33, 1986.

26. Holm, A.-K. and Andersson, R. Enamel

mineralization disturbances in 12-year-old children with known early exposure to fluorides. *Community Dent Oral Epidemiol* 10:335-339, 1982.

27. Suckling, G.W., Brown, R.H. and Herbison, G.P. The prevalence of developmental defects of enamel in 696 nine-year-old New Zealand children participating in a health and development study. *Community Dent Health* 2:303-313, 1985.

28. Dummer, P.M.H., Kingdon, A. and Kingdon, R. Prevalence of enamel developmental defects in a group of 11- and 12-year-old children in South Wales. *Community Dent Oral Epidemiol* 14:119-122, 1986.

29. Pindborg, J.J. Pathology of the Dental Hard Tissues. Copenhagen, Munksgaard, 1970, pp. 75-137.

30. Moller, I.J. Fluorides and dental fluorosis. *Int Dent J* 32:136-147, 1982.

31. Ishii, T. and Suckling, G. The appearance of tooth enamel in children ingesting water with a high fluoride content for a limited period during early tooth development. *J Dent Res* 65:974-977, 1986.

32. Horowitz, H.S. Indexes for measuring dental fluorosis. *J Public Health Dent* 46:179-183, 1986.

33. Small, B.W. and Murray, J.J. Enamel opacities: Prevalence, classifications and etiological considerations. *J Dent* 6:33-42, 1978.

34. Osuji, O.O. The Dental Fluorosis Study in East York School Children. M.Sc. Thesis, University of Toronto, Toronto, 1987.

Faites d'une pierre deux coups et profitez d'une retraite plus élevée sans payer plus

Pourquoi attendre au 1^{er} mars 1989 pour faire votre versement de 1988 à votre RER?

Faites d'une pierre deux coups et faites votre versement de \$ 7 500 pour 1988 ET votre versement de \$ 8 500 pour 1989 en janvier 1989.

En faisant deux versements simultanément et en continuant à le faire tôt chaque année, vous pourrez vous retrouver avec \$ 57 000* DE PLUS au bout de 20 ans et \$ 148 000* DE PLUS au bout de 30 ans.

*sur la base de versements annuels de \$ 8 500 à 10 %

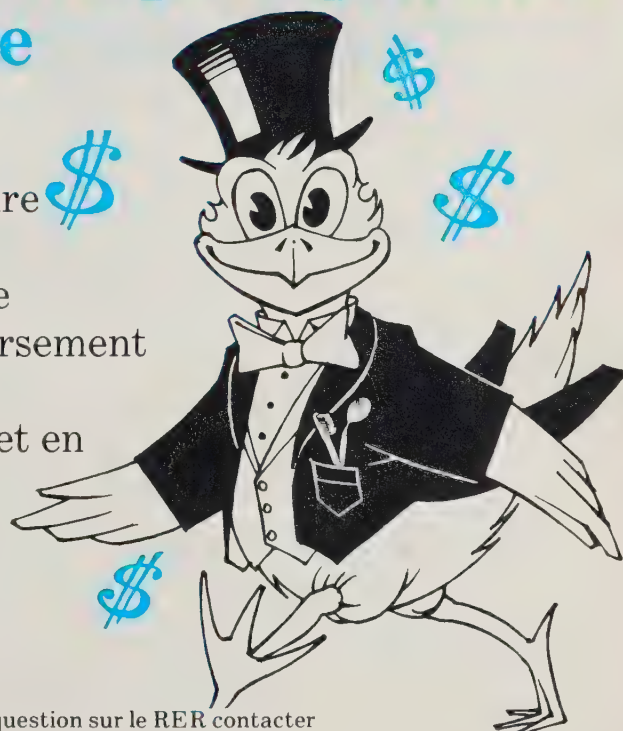


RER ADC

Pour de plus amples renseignements ou pour toute question sur le RER contacter le Service planification retraite du CDSPI, à n'importe quelle heure, sans frais :

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807
1.800.268.34.11 Québec et Ontario, sauf pour la région avec l'indicatif régional 807
497.71.17 Toronto et environs

Régime administré par le Canadian Dental Service Plans Inc.,
2, square Lansing, Bureau 600, Willowdale, Ontario M2J 4Z3



When they open wide – *are you wide open?*



Every day, you and your staff are exposed to blood and saliva. And that's how hepatitis B is spread—through contact with infected body fluids.

Worldwide, it is estimated that some 285 million people carry this highly infective and potentially lethal virus. For several reasons, the number of carriers in Canada is growing daily. *Unfortunately, you can't recognize a hepatitis B carrier on sight.*

That puts you at high risk.

Vaccination is your best protection. So why not practice some "preventive dentistry" on yourself and your staff. For convenience and savings, take advantage of the special order form provided on the opposite page.

Prevention is your best protection.

Engerix®-B is a remarkable product of genetic engineering, so it can meet the highest standards for effectiveness and purity.

Best of all, Engerix®-B is priced to provide significant cost savings compared to previous hepatitis B vaccines.

Choose either the conventional 3 dose schedule (months 0, 1, 6), or a 4 dose schedule (months 0, 1, 2, 12) for more rapid protection. Engerix®-B may also be used as a booster for those previously vaccinated with a plasma-derived vaccine.

Make a solid investment in prevention. Use the convenient form below to order for you and your staff.

Engerix®-B SK&F

Hepatitis B vaccine (recombinant)
Sensible protection at a sensible price

(Cut here)

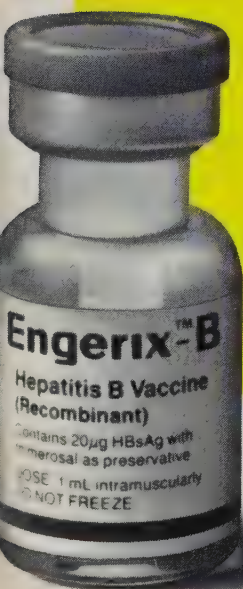
No. 9096 **ENERGIX®-B Hepatitis B Vaccine (recombinant)**

Unit price: \$33.00 per single dose vial. A \$7.50 shipping charge must be added to orders under \$300.00. Cheque or money order must accompany order.

Please complete all sections below, enclose cheque or money order, and mail to:

Institut Armand-Frappier
ORDER DEPARTMENT
531, boulevard des Prairies, C.P. 100
Laval, Quebec H7N 4Z3

(Please print clearly, using block letters)



**Please
Ship:**

_____ vials at \$33.00 each = \$

plus

_____ shipping charge (\$7.50) [if applicable] = \$

Total Enclosed \$

Ship to:

_____ Name

_____ Street Address

_____ City

_____ Province

_____ Postal Code

_____ Telephone

Signature:

Date:

Ne vous sentez-vous pas un peu nu?

- Pourriez-vous conserver votre niveau de vie actuel avec seulement \$2 800 par mois d'indemnités d'invalidité prolongée?

- Les frais généraux de votre cabinet sont-ils inférieurs à \$3 500 par mois?

- Pourriez-vous remplacer le contenu de votre cabinet, y compris les améliorations locatives, pour seulement \$129 000?

- Votre facturation brute à vos patients est-elle inférieure à \$21 500 par mois?

Si vous avez répondu non à l'une de ces questions, vous risquez d'être sous-assuré.

Les chiffres ci-dessus reflètent les montants de garantie moyens que possédaient les participants au RADC au 31 décembre 1987 en invalidité prolongée, frais généraux et contenu ainsi que l'équivalent mensuel de l'assurance des pertes d'exploitation moyenne*.

Ces moyennes nationales sont relativement basses eu égard aux niveaux de vie et de frais actuels. Si vos montants de garantie ne sont pas plus élevés que ces moyennes, vous risquez de connaître de graves problèmes financiers en cas de sinistre.

*Il est recommandé de souscrire pour l'assurance des pertes d'exploitation un montant de garantie égal à au moins quatre fois votre facturation mensuelle la plus élevée. Vous pouvez demander jusqu'à 25% de votre montant de garantie par mois. Ainsi, la moyenne nationale de \$86 000 couvre \$21 500 de facturation brute par mois pendant quatre mois.

**N'attendez pas qu'il soit trop tard.
Protégez-vous en relevant vos montants
de garantie.
Appelez le CDSPI pour de plus amples
renseignements.**



Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1. 800. 268. 54. 18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1. 800. 268. 34. 11 Québec et Ontario, **sauf** pour la région avec l'indicatif régional 807

497. 71. 17 Toronto et environs

Régimes parrainés par vos associations dentaires nationale et provinciales et administrés par le CDSPI, 2, square Lansing, Bureau 600, Willowdale, Ontario M2J 4Z3

Le texte ci-dessus a été approuvé par nos consultants/courtiers et nos assureurs.

NURSING CARIES IN THE INUIT CHILDREN of the Keewatin

Ronald J. Albert, DMD
Connecticut, USA

Roland Y. Cantin, DMD
Winnipeg, Man.

H.G. Cross, DMD, MSc
Winnipeg, Man.

C.R. Castaldi, DDS, MSD
Connecticut, USA

ABSTRACT

The purpose of the study was to determine the level of dental disease in Eskimo pre-school children, facilitate treatment modes, and recommend effective preventive measures.

Oral examinations were carried out on 260 pre-school Eskimo children in eight communities of the Keewatin District of the Northwest Territories (N.W.T.) of Canada. The study covered 37 per cent of the total population of children age three months to five years in those communities. The parents or guardians were asked about the medical and dental history and especially infants' feeding habits. The dental condition was noted after a mirror and explorer examination with individual teeth categorized as: (1) no caries, (2) incipient caries, (3) moderate caries, (4) severe caries. The extent of treatment needed was evaluated and arrangements made accordingly: (1) no treatment needs, (2) outpatient treatment needs, (3) hospitalization with treatment under general anesthesia.

By 18 months, 20 per cent of the infants had both anterior and posterior caries and by 49 months over 80 per cent

had caries requiring treatment. In the study group, 79 per cent were bottle fed and 86 per cent of this category slept with the bottle in the mouth. The substrate was found to be condensed milk or fruit juice.

A disastrous dental situation exists in the Inuit children. Treatment modalities are inadequate and expensive. It was felt that effective prevention of this disease must come from informed people within the native community.

SOMMAIRE

Cette étude avait pour but de déterminer le degré de gravité des maladies dentaires chez les enfants esquimaux d'âge préscolaire, de faciliter les modes de traitement et de recommander des moyens de prévention efficaces.

Dans huit communautés du District du Keewatin dans les Territoires du Nord-Ouest, on a effectué des examens buccaux sur 260 enfants d'âge préscolaire, soit 37 pour cent de l'ensemble de la population des enfants de trois mois à cinq ans dans ces communautés. On a interrogé les parents ou tuteurs sur l'histoire médicale et dentaire de ces enfants,

et surtout sur leurs habitudes alimentaires. Après examen à l'aide d'un miroir et d'un sonde, on notait l'état de chaque dent de la façon suivante: (1) pas de caries, (2) caries débutantes, (3) caries moyennes, (4) caries graves. On évaluait quels traitements s'imposaient et on prenait des mesures en conséquence:

- (1) aucun traitement nécessaire,
- (2) traitements pour patients externes,
- (3) hospitalisation avec traitements sous anesthésie générale.

À 18 mois, 20 pour cent des enfants avaient des caries antérieures et postérieures et, à 49 mois, plus de 80 pour cent avaient des caries exigeant des traitements. Dans le groupe examiné, 79 pour cent des enfants avaient été nourris au biberon et 86 pour cent d'entre eux avaient dormi le biberon à la bouche. Les biberons contenaient du lait condensé ou du jus de fruit.

La santé dentaire des enfants Inuit est dans un état lamentable. Les traitements qu'on leur donne sont inadéquats et dispendieux. Pour que la prévention soit efficace, il faudrait qu'à l'intérieur même des communautés, il y ait des autochtones qui interviennent.

Nursing Caries

Nursing caries is sometimes described as "nursing bottle caries", "bottle caries" or "bottle mouth". It is, by definition, the rampant decay of the early primary dentition and is closely related to the eruption sequence, with the exception of the primary mandibular incisors.¹⁻³ Characteristic labial and palatal-cervical decay first appears on maxillary incisors, then on maxillary first molars (buccal surfaces and cusp tips), and then on second molars and cuspids.³⁻⁶ Severity of the disease increases with age, varying from initial cervical white spot lesions on maxillary incisors to complete destruction, leading to loss of dento-facial vertical dimension.^{3,5,6} Treatment of severe nursing caries in the very young child often requires a general anesthetic for oral rehabilitation.⁷ The development of a life-long caries process for many may begin with nursing caries, as implied by a recent study demonstrating that children with a history of nursing decay are more susceptible to future approximal molar decay⁸ and risk the development of malocclusion and periodontal problems in the adult dentition.

Dental services for children of the Keewatin

Historically performed by surgeons from the Hudson Bay Company fur trading ships, episodic dental treatment has also been administered by missionaries, trading-post managers and The Royal Canadian Mounted Police.^{9,10} A modern program of comprehensive dental care for children from the Keewatin district of the Northwest Territories (NWT) was established in 1958 at the Winnipeg Children's Hospital (WCH) by Dr. W.A. Feasby, the first Head of Pedodontics at the University of Manitoba's Dental School. This project has not only continued to the present day, but has been expanded to involve a modern dental facility at Churchill, Manitoba.

The treatment offered has been two-fold: (1) the routine treatment of uncomplicated dental problems under local anesthesia during the child's admission to the hospital for an unrelated medical problem or (2) the complete oral rehabilitation under general anesthesia for cases of severe dental neglect.

In the past five years, the use of general anesthesia for oral rehabilitation for the treatment of nursing caries in the study population has significantly increased.

Many children have been flown to Winnipeg or Churchill for the sole purpose of dental treatment secondary to nursing caries. It is unclear whether the apparent increased prevalence of nursing caries in these native children is related to an increased incidence over the past 25 years or to a greater awareness of the condition. Even the most remote communities are visited periodically by itinerant dentists who, although they do not often treat the very young, refer them to treatment centres. Regardless of these uncertainties, the prohibitive cost of flying a child and parent from the NWT to a treatment centre and the risk of prolonged general anesthesia underscore the imperative need for an effective program of preventive dentistry.

Purpose of the study

The present investigation was conducted to: 1) study the oral health of pre-school native Inuit children in the Keewatin district of the NWT; 2) assess dental needs and treatment experience; 3) study the association between nursing caries and suspected etiological factors; 4) determine what dental preventive measures might be applicable for the population

TABLE I

Geographic location, caries prevalence and treatment status

Settlement	N	% 0-59 mo. ³	Mean Age mo.	% With Caries ¹			% With Treatment ²		
				Total	Anterior	Posterior	None	OP	OR
Repulse Bay	44	63	38.6	65.9	50.0	59.1	26.5	45.5	34.1
Coral Harbour	51	64	41.8	70.6	56.9	56.9	33.3	37.3	29.4
Baker Lake	43	33	37.8	51.2	34.9	54.1	44.2	37.2	18.6
Chesterfield	17	49	36.6	70.6	58.8	35.3	5.9	70.6	23.5
Rankin inlet	14	10	35.9	78.6	78.6	78.6	7.1	64.3	28.6
Whale Cove	15	47	30.9	73.3	60.0	57.1	26.7	33.3	46.3
Eskimo Point	41	25	36.5	78.0	75.6	63.2	22.0	31.7	46.3
Sanikiluaq	35	58	42.3	74.3	57.1	61.8	28.6	34.3	37.1
Total ⁴	260	37%	38.3	68.4	60.4	58.2	26.9	40.8	32.3

1. "% With Caries" column:

Total: Patients were included if they had one or more carious lesions.

Anterior: Patients were included if they had one or more anterior carious lesions.

Posterior: Patients were included if they had one or more posterior carious lesions.

2. "% With Treatment" column: Each patient was included in the category with the most aggressive treatment.

None: (no treatment needed and none ever) less aggressive than

OP: (treatment needed or previously performed in an ambulatory setting) less aggressive than

OR: (treatment needed or previously performed in the operating room under general anesthesia).

3. "% 0-59 mo." column describes the percent of the 0-59 month old children in each community available for examination.

4. "Total" row describes the population examined as a group, not the mean or summary of the columns above.

under study; and 5) provide any necessary emergency dental treatment under local anesthesia.

Review of the Literature

Nursing and early caries

A possible relationship between nursing and early caries in children is believed to have first been described in 1882 by Jacobi, a pediatrician.⁶ Since that time, studies in several countries have revealed the following prevalence: 2.5 per cent in France (Beltrami, 1939), 3.2 per cent in Canada (Derkson et al., 1981), 13.8 per cent in South Africa (Cleaton-Jones, 1978), and 12 per cent in the United States (Johnson 1986).^{2,4}

The profile of the nursing caries patient has been addressed by several authors. Johnson et al.¹¹ support the concept of nursing caries as an outcome of parental over-indulgence and indicate that a single profile for susceptible children is unlikely. In a previous publication, Johnson¹² had proposed a profile of children susceptible to early caries of maxillary incisors that included sleeping with a bottle in the mouth, parental obesity, lack of education and of authority. Dilley et al.¹³ found prolonged nursing, bottle use in bed and the use of bottled milk to be common. Picton and Wittshear¹⁴ found significantly more nursing caries when the child had the bottle in bed. Powell⁶ concluded that it was difficult to relate nursing habits to children's susceptibility to the disease. Richardson et al.^{15,16} included in their profile genetic components among other etiological agents, while Derkson and Ponti⁴ proposed an influence of prolonged illness.

Suspected etiological factors of nursing caries included bovine and breast milk, sweetened pacifiers and genetic influences. Powell⁶ reviewed studies that proposed protective qualities of bovine milk, and others that postulated that fermentable carbohydrates in milk are cariogenic. The cariogenicity of milk may be proportional to the length of exposure and is compounded by supplementation with sugars.^{3,7} Oral hygiene, fluoridation and salivary flow may also have an influence on the cariogenicity of nursing milk.^{7,17,18} In spite of documented cases of nursing caries in breastfed children, breast milk as a causative factor is controversial.^{6,18-21} Derkson and Ponti⁴ have proposed the term "nursing caries syndrome" and have described cases of characteristic rampant caries in the early primary dentition of both bottle- and breast-fed children. Despite differences in nursing practices and the use of pacifiers, Richardson et al.^{16,22} have demonstrated



Fig. 1. Map showing communities in the Keewatin district.

a racial difference in nursing caries which may be related to genetic factors.

Milnes and Bowden²³ demonstrated significant increases of *Streptococcus mutans*, *Lactobacillus* and *Veillonella* in nursing caries lesions and susceptible tooth surfaces, proposing that additional local factors contribute to the development of lesions. Berkowitz et al.²⁴ and Van Houte et al.²⁵ found high levels of *Streptococcus mutans* and *Lactobacilli* in children with nursing caries, suggesting inoculation with a cariogenic flora through intimate contact with their parents. Berkowitz et al.²⁶ reported a significant presence of *S. mutans* in infants when maternal salivary levels of the bacteria were greater than 10^5 CFU/ml. A delay in the development of cariogenic flora from a maternal source in infants has been demonstrated and is similar to that for other infectious diseases.²⁷

Milnes²⁸ emphasizes two obstacles to the prevention of nursing caries: 1) information concerning preventive dentistry does not reach parents prior to the onset of nursing caries, and 2) health care providers of infant and pre-school children often do not have critical preventive information. More critical perhaps are family priorities. Such factors as unemployment, cultural deprivation, alcoholism, glue and gasoline sniffing, illness, infant mortality etc. . . are problems which put the prevention of caries, however simple, at the bottom of any list of priorities.

Dental Caries in the Children of the Keewatin and the History of Dental Services

The word "Eskimo" in the Athapaskan Indian dialect means "raw meat eaters".

Over the past few decades, however, the dietary habits of Eskimo or Inuits, as they prefer to be called, have undergone significant changes. The increase in caries prevalence in the Inuit population has been attributed to a greater consumption of processed foods, rather than to special dental anatomical features.^{29,30} MacPhail et al.³¹ Curzon and Curzon^{32,33} and Mayhall³⁴ have reported that children living in extremely isolated communities have less decay than those living closer to modern western civilization. Theories of the Inuit's overuse of sugar due to taste insensitivity have been refuted,³⁵ but there is little doubt that westernization has resulted in a diet that has doubled in carbohydrate content and halved protein consumption.³⁶ Studies evaluating westernized native populations in North America's Arctic region clearly indicate a significant decline in oral health due to increased genetic heterogeneity and to dietary changes.^{29,37,39}

It was not until the 1930's that six nursing stations were established in the Keewatin District of the NWT. In 1955, the present Northern Health Service was formed to provide a special health program for 50,000 natives in 170 settlements covering 1.5 million square miles.¹⁰ In 1970, the nursing stations in the NWT received portable dental equipment which allowed "comprehensive" dental care for school age and adult patients but did not address the needs of cases with severe dental problems or the very young. Such cases need to be referred to distant centres with special facilities for management, which involves significant cost and deprives the patient of the emotional support of the family environment.

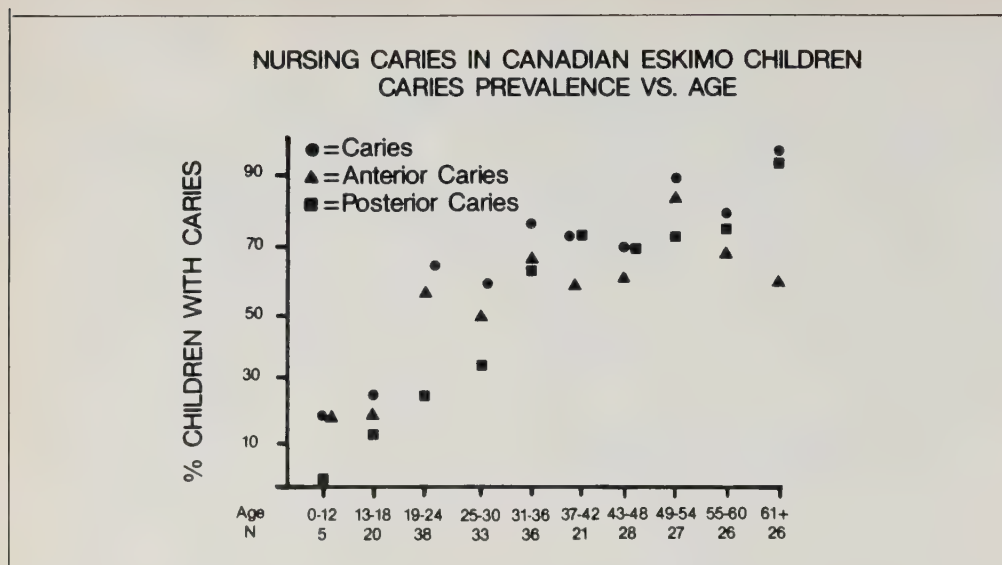


Fig. 2. Nursing caries in Canadian Eskimo children: caries prevalence vs. age.

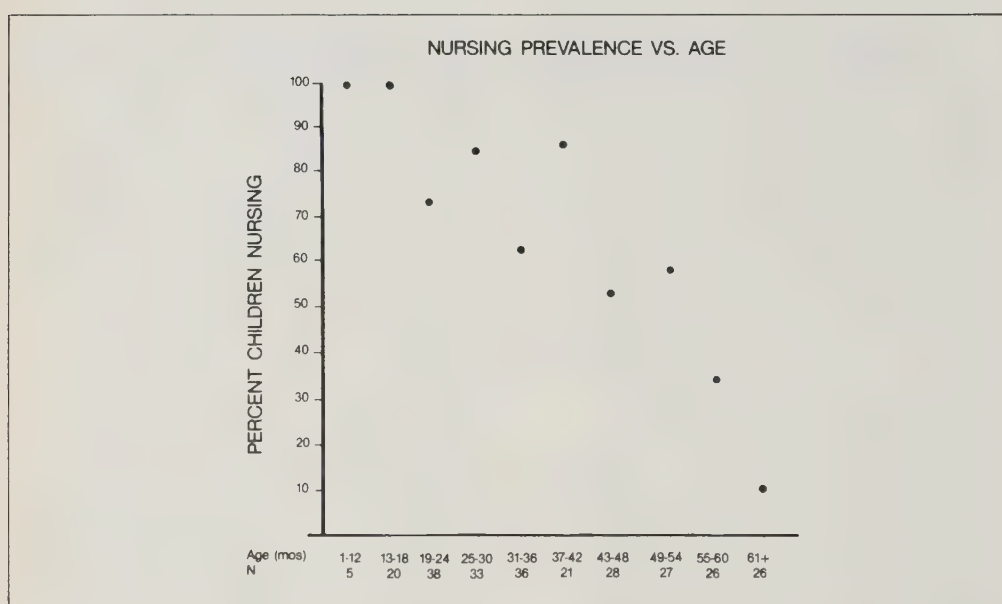


Fig. 3. Nursing prevalence vs. age.

Methodology

Oral examinations on 260 pre-school children in eight communities in the Keewatin District of the Northwest Territories of Canada were performed. These communities included Repulse Bay, Coral Harbour, Baker Lake, Chesterfield Inlet, Rankin Inlet, Whale Cove, Eskimo Point and Sanikiluaq (Fig. 1). The study group included 37 per cent of the total population of children aged three months to five years in the eight settlements, with a range of participation between 10 and 64 per cent. The accompanying survey covered nursing habits, vitamin supplementation, antibiotic use, medical and dental history and parental awareness of nursing bottle caries. All children were examined by one investigator (HGC) with mirror and explorer under a dental light.

Teeth were recorded as carious if there was clinical evidence of caries or treatment of caries was present. Intraoral radiographs were not included in the examination. Missing teeth due to trauma were counted as caries free (12 teeth in five patients).

The extent of treatment was assessed by grouping the patients according to treatment need or by past history of treatment. "None" indicated that no treatment was needed and that there was no previous history of treatment. Children grouped as "outpatient" (OP) needed treatment only as outpatients. Those listed as "operating room" (OR) were those who either required hospitalized treatment under general anesthesia or had been so treated previously.

Statistical testing to determine signifi-

cant difference in the groups was by the Chi-Square Test with significance at $p \leq 0.05$. Total anterior and posterior caries categories were tested individually against each etiological factor investigated. None, OP or OR categories were tested together against the factors to determine significant trends in treatment experiences and needs.

Results

Table I and Figures 2 and 3 show the number of patients in each age category, the geographic distribution, the percentage of children with caries in each age group, the percentage of nursing children in each age group, the site of caries (anterior or posterior) and the type of treatment (OP or OR).

One child under a year of age (8 months) was found with anterior caries. In the 13-18 month group, 20 per cent of the children examined had both anterior and posterior caries, the prevalence of which increased to 55 per cent and 25 per cent, respectively, at 24 months of age (Fig. 2). By the ages of 31 to 36 months, the prevalence of both anterior and posterior caries had risen to 65 per cent. The prevalence of children with caries continued to increase up to a level of just over 80 per cent by the ages of 49-54 months (Fig. 2).

Of the 42 children to age 30 months (44 per cent) with anterior caries, only two had a single tooth affected, 12 had two teeth and 28 had three or more. Only one child with anterior caries had involvement of mandibular incisors (a 28-month-old with caries recorded on 10 anterior and seven posterior teeth). Fifteen of the 42 children 0-30 months with anterior caries also had posterior caries. Seven of the children in this age group had posterior caries but no anterior caries (mean = 23 months, range 13-29 months).

Sex differences were not apparent. Children in Baker Lake had fewer total and anterior caries than those in the other communities, while the Chesterfield Inlet children had fewer posterior caries. Figure 3 shows the percentage of each age group which reported continued nursing.

Tables II-VI examine the relationship between nursing habits, caries and treatments provided. Although no significant differences were found in the prevalence of anterior caries in breast and bottle fed children (Table IV), the time of switching from breast to bottle feeding was significant in regards to anterior caries prevalence (Tables II and III).

Table V shows a significant association between nocturnal bottle feeding and anterior caries. Children who slept with the bottle in the mouth, (86 per cent of

those bottlefed, 79 per cent of the study group) had significantly more anterior caries than their peers.

The addition of sugar to canned milk was associated with increased prevalence of caries and need for OR treatment, although milk, with or without added sugar, was seen as cariogenic. There was no difference between the use of fruit juice and no fruit juice but the prevalence in those children fed juice was the same as those who used milk.

A significant medical history (prolonged illness, birth defect or adoption) was not associated with differences in caries prevalence (Table VII). Children who had received three or more antibiotic courses had a greater prevalence of anterior caries than those subjected to fewer courses (Table VIII). Half of the children had received vitamin supplements without any decrease in caries prevalence (Table IX).

Children whose parents claimed to be informed of nursing caries had significantly less posterior than anterior caries (Table X). Those informed by relatives, friends and dental staff or who had a child previously affected by nursing caries had significantly less anterior caries and required less treatment than those informed through the media and nursing stations (Table X).

Discussion

The authors recognize that the findings in the present investigation do not provide a causal relationship between etiological factors and nursing caries; the investigation, like previous studies, is retrospective. A prospective study may not be possible in today's climate of human experimentation. Nevertheless, a number of significant associations have been demonstrated.

Most of the children less than 30 months old with anterior caries had multiple anterior maxillary lesions (95 per cent, two or more; 71 per cent, three or more) with no involvement of the mandibular incisors (98 per cent). Because the lesions were consistent with the classical clinical description of nursing caries, the authors determined the prevalence of nursing caries in the study population by the prevalence of anterior caries. This assumption is supported by the low number of patients under 30 months (7 per cent) with posterior caries but without anterior lesions. Total caries prevalence up to 25-30 months (Fig. 2) resulted mostly from nursing caries with some pit and fissure caries and little overlap. Because most children continued nursing habits up to 54 months, the

increase of anterior caries seen is most likely due to nursing caries. The gradual increase in posterior caries could be related to the prolonged nursing habits or increased susceptibility to proximal caries as reported by Johnson et al.⁸

The prevalence of nursing caries in the study population was 50-55 per cent by 30 months and 60-65 per cent by 48 months, five times more prevalent than in any previous study group. Clearly the caries prevalence in these children is

TABLE II

Duration of breast feeding, caries prevalence and treatment status

Duration	N	Total ²	% With Caries		% With Treatment		
			Anterior ²	Posterior	None	OP	OR
0 - 6 mo.	44	70.5	61.4	50.0	27.3	38.6	34.1
7 - 12 mo.	34	67.6	58.8	55.9	35.3	23.5	41.2
13 - 24 mo.	27	40.7*	25.9*	48.1	48.1	33.3	18.5
24 mo. +	34	82.4	67.6	67.6	14.7	47.1	38.2
(Bottle only)	74						
(Unknown)	47						

* $p \leq 0.05$
¹ Includes all patients breastfed regardless of other nursing substrates also used.
² Significant differences were determined in Total and Anterior caries vs. breastfeeding duration by 2×4 chi-square test ($p \leq 0.05$).

TABLE III

Starting age of bottle feeding,¹ caries prevalence and treatment status

Age when Started	N	Total	% With Caries ²		% With Treatment		
			Anterior*	Posterior	None	OP	OR
0 - 6 mo.	105	71.4	61.9	53.4	23.8	46.7	29.5
7 - 12 mo.	28	64.3	57.1	42.9	35.7	25.0	39.3
13 - 24 mo.	26	50.0	30.8*	42.3	34.6	50.0	13.5
24 mo. +	19	78.9	68.4	63.2	21.1	52.6	26.3
(Breast only)	22						
(Unknown)	60						

* $p \leq 0.05$
¹ Includes all patients bottle fed regardless of breast feeding history.
² Significant difference determined relative to anterior caries vs. age when bottle began by 2×4 chi-square test ($p \leq 0.05$).

TABLE IV

Method of nursing, caries prevalence and treatment status

Nursing Method	N	Total	% With Caries ¹		% With Treatment		
			Anterior	Posterior	None	OP	OR
Bottle Only	74	75.7	60.8	58.1	20.3	52.7	46.5
Breast Only	22	77.3	59.1	77.3	13.6	50.0	36.4
Bottle & Breast	142	65.5	54.2	58.5	31.0	36.6	25.4
Unknown	22						

* $p \leq 0.05$
¹ Significant difference determined for children with posterior caries vs. nursing type by 2×3 chi-square test.

high; less than 10 per cent remained caries free by 60 months and the findings appear to agree with those of Titley and Bedard⁴⁰ for four- and five-year-old Indian children of Sioux Lookout, Ontario. In their study, 90 per cent of the central incisors and 67-86 per cent of the lateral

incisors were decayed and accounted for 25 per cent of the total def. It seems possible that at age two their population had nursing caries with a prevalence similar to the children in the present study. Nursing caries can occur in exclusively breastfed children (Table IV) and there-

fore the words "baby bottle" may be questionable in the nomenclature, as proposed by Derkson and Ponti.⁴ Our findings showed less nursing caries in children who breastfed for 13-24 months (Table II) and began bottle feedings in the same period (Table III), suggesting that the risk of nursing caries in these children would be reduced if they breastfed for 13-24 months, then stopped nursing altogether.

The suspected causal relationship between nocturnal bottle feeding of milk and nursing caries was supported in the present study (Table V), and agrees with previous reports.¹²⁻¹⁴

Nursing bottle substrates have long been suspected in the etiology of nursing caries.^{3,4} Milk or milk products were shown to be associated with caries, and the inclusion of sugar in the child's evaporated milk and water formula was associated with nursing caries and increased use of the operating room for treatment. It is assumed that, implicit in the process of nursing caries, as an infant falls asleep or becomes drowsy flow rate decreases^{41,42,43,45} — thus decreasing the clearance capabilities and buffering⁴⁴ capacity of saliva at the plaque level.

Childhood illness has been held to have a causal relationship with an increased prevalence of nursing caries.⁴ Children with recurrent or prolonged ailments tend to be unduly pampered and consequently indulged with cariogenic substrates. This was not the case in children with only a positive medical history (Table VII). However, if the number of antibiotic courses taken by children corresponded to the number of episodic diseases experienced, then the study shows that children with multiple episodic illness are at greater risk to nursing caries and necessary OR treatment than their healthier peers (Table VIII). Because the antibiotic courses were short term, any anticipated reduction in caries from antibiotic therapy is unlikely.

There was no difference between the use of fruit juice and no fruit juice by bottle, as the caries prevalence from the use of juice was the same as from milk, which may reflect the use of multiple cariogenic liquids.

Vitamin supplements were not associated with reduced prevalence of caries (Table IX) but the preparation used did not contain fluoride. Beginning in February 1986, fluoride was to be included in the preparation prescribed for the children but any preventive affect would likely involve mostly the permanent teeth.

The very high prevalence of caries in

TABLE V
Nocturnal bottle feeding, caries prevalence and treatment status

Bottle	N	Total*	% With Caries ¹		% With Treatment* ²		
			Anterior*	Posterior	None	OP	OR
Not in Bed	32	46.9*	40.6*	42.3	43.8*	37.5	18.8*
In Bed	202	72.3	59.4	48.9	24.8	41.1	34.2
Breast Only	22						
(Unknown)	4						

* p ≤ 0.05

¹ Significant difference determined for total children with caries and children with anterior caries relative to having the bottle in bed by 2 × 2 chi-square test.

² Trend for more "O.R. treatment" and less "no treatment" statistically significant by 2 × 3 chi-square test.

TABLE VI
Contents of bottle, caries prevalence and treatment status

Milk ¹	N	Total*	% With Caries ²		% With Treatment ³		
			Anterior*	Posterior	None	OP	OR
Canned	100	60.0*	47.0*	52.0	35.0*	42.0	23.0*
Canned with Sugar	90	75.6	62.2	63.3	18.9	44.4	36.7
Other	48						
Juice	N	Total	Anterior	Posterior	None	OP	OR
No Juice	113	70.8	58.4	64.6	26.5	43.4	30.1
Juice ⁴	123	65.0	53.7	52.8	30.1	38.2	31.7
Unknown	2						

* p ≤ 0.05

¹ Not all children who were bottle fed (N = 238) had canned milk.

² Significant difference determined for total children with caries and children with anterior caries relative to having the bottle in bed by 2 × 2 chi-square test.

³ Trend for more "O.R. treatment" and less "no treatment" in milk groups statistically significant by 2 × 3 chi-square test.

⁴ "Juice" in bottle included children who had juice with added sugar (three cases). Juice was usually "Tang" which has lots of sugar.

TABLE VII
Medical history, caries prevalence and treatment status

Medical History	N	Total	% With Caries		% With Treatment		
			Anterior	Posterior	None	OP	OR
Negative	191	72.8	54.5	58.9	26.7	42.4	31.9
Positive ¹	37	64.9	59.5	45.9	35.1	32.4	32.4
Unknown	32						

¹ Includes 15 adopted children.

the present population raises a host of other questions. Are Inuits significantly different than other populations, to explain the high caries rates? Two of us (H.G. Cross and R.Y. Cantin) have noted that the occlusal grooves on the deciduous teeth appear deeper than in non-Inuit children. Deciduous second molars are so large that permanent first molar crowns are often required because the largest deciduous crowns available are often too small.

It is encouraging from the present study that the prevention of nursing caries is partially possible through parental education (Table X). However, education as employed through the media and nursing stations across cultural barriers is not as effective as from relatives and friends or having previous children with nursing caries. Titley and Bedard⁴⁰ acknowledge the cultural barrier and the importance of a preventive program. They reported that caries prevalence did not decline during a decade of improved dental services for Sioux Lookout children. Clearly, if a preventive message is to be made, then it would be most effective through intracultural sources. Education of community leaders or enrolment of qualified natives into the health professions would be beneficial. Secondly, due to the very high prevalence of nursing caries in the population, children should visit the dentist prior to one year of age for preventive visits as recommended in 1986 by the American Academy of Pediatric Dentistry.⁴⁵ Professional fluoride applications should be given along with oral hygiene instructions. Such visits can help the parent and dentist identify risk factors in the family.

Although some of the communities did have the potential for fluoridation of water (as some have suggested as a possible aid) melted snow was often favoured for family consumption.

Recently, Goepford⁴⁶ in a report of infant oral health showed that parents of young Iowa children are quite interested in early preventive services. Whether the same idea is sufficiently important to Inuit parents to motivate them toward a serious commitment to dental preventive services, needs further study.

Summary and Conclusions

The oral health of 260 pre-school children living in isolated communities in the Keewatin District of Canada's Northwest Territories has been studied. The group, which consisted of 37 per cent of the child population three months to five years of age, was examined for the presence of nursing caries and reviewed for

TABLE VIII

Number of antibiotic therapy courses, caries prevalence, treatment experience and need

Antibiotic Therapy Courses	N	Total	% With Caries		% With Treatment ²		
			Anterior	Posterior	None	OP	OR
0, 1 or 2	128	71.9	46.8*	61.6	28.1	43.8	28.1*
3 or more	106	73.6	65.1	62.1	25.5	34.0	40.6
Unknown	26						

* $p \leq 0.05$
¹ Significant statistical difference only in children with anterior decay grouped by number of antibiotic courses by 2×2 chi-square test.
² Significant statistical difference only found in treatment modalities in antibiotic therapy course groupings by comparing O.R. treatment vs. O.P. and none by 2×2 chi-square test.

TABLE IX

Vitamin supplements, caries prevalence and treatment status

Vitamin Supplements History ¹	N	Total	% With Caries		% With Caries		
			Anterior	Posterior	None	OP	OR
Negative	127	69.3	52.8	66.1	26.8	41.7	31.5
Positive	122	69.7	61.5	54.9	25.4	41.8	32.8
Unknown	11						

¹ Children included in positive group if they reported any use of a vitamin supplement regimen.

TABLE X

Parental knowledge of preventing nursing caries, caries prevalence and treatment status

Parent Informed	N	Total	% With Caries ¹		% With Treatment ²		
			Anterior	Posterior	None	OP	OR
Never heard	124	73.4	59.7	64.3*	20.2*	47.6*	32.3
Heard	125	63.2	53.6	51.2	34.4	34.4	31.2
Unknown	11						

Source of Information ³							
Nursing Station/Media	86	72.1*	64.0*	56.5	25.6*	40.7	33.7*
Other ⁴	19	36.8	15.8	36.8	68.4	31.6	10.5
Not sure	20						

* $p \leq 0.05$
¹ Significant statistical difference found in the following groups by 2×2 chi-square.
a. Children with posterior caries grouped by whether their parents claimed to have heard of nursing caries.
b. Children with caries and children with anterior caries only grouped by where their parents heard of nursing caries.
² Significant statistical differences found in treatment modalities for both groupings, if the parents were informed and the source of information by 2×3 chi-square tests to each grouping.
³ Source of information only for those who claimed to have heard of nursing caries (N = 125).
⁴ Other — relatives, friends/acquaintances, dental staff or previous child with nursing caries.

treatment experiences. Over 50 per cent of the children continued nursing habits until 49-54 months. By 43-48 months, 60-65 per cent of the children had nursing caries; breastfed children were not exempt. Significant various forms of milk formula association was shown between nursing caries and nocturnal bottle use, and multiple episodic illness. Preventive measures involving education and treatment are proposed. Δ

The authors wish to express their appreciation to Trudy Lerer for her assistance in biostatistics and to Jean Butler, Laurie Macsuga and Ira Sliwinski for their assistance in the preparation of the manuscript.

Dr. Albert is clinical instructor, Department of Pediatric Dentistry, School of Dental Medicine, University of Connecticut.

Dr. Cantin is assistant professor, Department of Preventive Dental Science, Faculty of Dentistry, University of Manitoba, Winnipeg, Man.

Dr. Cross is associate professor, Department of Preventive Dental Science, Faculty of Dentistry, University of Manitoba.

Dr. Castaldi is Professor Emeritus, Department of Pediatric Dentistry, School of Dental Medicine, University of Connecticut.

Reprint requests to Dr. Cantin, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Avenue, Winnipeg, Man. R3E 0W3.

References

1. King, D.L. and Leimone, C.A. Nursing bottle caries — a preventive dilemma. *Dent Assist* 47:18-19, 1978.
2. Tinanoff, N. Dental caries: etiology, pathogenesis, clinical manifestations and management. In: Wei, S.H.Y. (ed.). *Pediatric Dentistry and Orthodontics*. In press (1986).
3. Ripa, L.W. Nursing habits and dental decay in infants: "nursing bottle caries". *J Dent Child* 45:274-275, 1978.
4. Derkson, G.D. and Ponti, P. Nursing bottle syndrome: prevalence and etiology in a non-fluoridated city. *J Can Dent Assoc* Vol. 48, No. 6:389-393, 1982.
5. Kammerman, A.M. and Starkey, P.E. Nursing caries: a case history. *J Ind Dent Assoc* 60:7-10, 1981.
6. Powell, D. Milk . . . is it related to rampant caries of the early primary dentition? *J Calif Dent Assoc* 4:58-63, 1976.
7. Shelton, P.G., Berkowitz, R.J. and Forrester, D.J. Nursing bottle caries. *Pediatrics* 59:777-778, 1977.
8. Johnson, D.C., Gerstenmaier, J.H., Difantis, T.A. et al. Susceptibility of nursing caries children to future approximal molar decay. *Ped Dent* 8:168-170, 1986.
9. Shedden, A.S., Curzon, J.A. and Curzon, M.E. Arctic dentistry. *Br Dent J* 136:29-31, 1974.
10. Butler, G.C. Delivery of health care in Northern Canada. *Can J Ophthalmol* 8:188-195, 1973.
11. Johnson, D.C., Gerstenmaier, J.H., Schwartz, E. et al. Background comparisons of pre-3½-year old children with nursing caries in four practice settings. *Ped Dent* 6:50-54, 1984.
12. Johnson, D.C. Characteristics and backgrounds of children with "nursing caries". *Ped Dent* 4:218-224, 1982.
13. Dilley, G.J., Dilley, D.H. and Machen, J.B. Prolonged nursing habit: a profile of patients and

- their families. *J Dent Child* 47:102-107, 1980.
14. Picton, D.C.A. and Wittshear, P.J. A comparison of the effects of early feeding habits on the caries prevalence of deciduous teeth. *Dent Pract* 20:170-172, 1970.
15. Richardson, B.D. and Cleaton-Jones, P.E. Letter to the editor. *J Dent Child* 50:72, 1983.
16. Richardson, B.D., Cleaton-Jones, P.E., McInnes, P.M. et al. Infant feeding practices and nursing bottle caries. *J Dent Child* 48:423-429, 1981.
17. Sperry, N.J. Should dental health professionals encourage the consumption of milk? *Dent Hyg (Chicago)* 57:23-27, 1983.
18. Abbey, L.M. Is breast feeding a likely cause of dental caries in young children? *JADA* 98:21-23, 1979.
19. Gardener, D.E., Norwood, J.R. and Elsenon, J.E. At will breast feeding and dental caries: four case reports. *J Dent Child* 44:186-191, 1977.
20. Kotlow, L.A. Breast feeding: a cause of dental caries in children. *J Dent Child* 44:192-193, 1977.
21. Roberts, G.J. Is breast feeding a possible cause of dental caries? *J Dent* 10:346-352, 1982.
22. Cleaton-Jones, P.E., Richardson, B.D., McInnes, P.M. et al. Dental caries in South African white children aged 1 to 5 years. *Com Dent Oral Epidemiol* 6:78-81, 1978.
23. Milnes, A.R. and Bowden, G.H.W. The microflora associated with developing lesions of nursing caries. *Caries Res* 19:289-297, 1985.
24. Berkowitz, R.J., Turner, J. and Hughes, C. Microbial characteristics of the human dental caries associated with prolonged bottle-feeding. *Arch Oral Biol* 29:949-951, 1984.
25. Van Houte, J., Gibbs, G. and Butera, C. Oral flora of children with "nursing bottle caries". *J Dent Res* 61:382-385, 1982.
26. Berkowitz, R.J., Turner, J. and Green, P. Maternal salivary levels of *Streptococcus mutans* and primary oral infection of infants. *Arch Oral Biol* 26:147-149, 1981.
27. Kohler, B., Bratthall, D. and Krasse, B. Preventive measures in mothers influence the establishment of the bacterium *Streptococcus mutans* in their infants. *Arch Oral Biol* 28:225-231, 1983.
28. Milnes, A.R. Nursing caries — etiology and treatment. In: *Current Treatment in Dental Practice*. N. Levine (ed). Toronto, W.B. Saunders. 1987.
29. Mayhall, J.T. The oral health of a Canadian Inuit community: an anthropological approach. *J Dent Res* 56:Spec. Publ. 55-61, 1977.
30. Mayhall, J.T. Dental morphology of Indians

- and Eskimos: its relationship to the prevention and treatment of caries. *J Can Dent Assoc* 38:152-154, 1972.
31. McPhail, C.W., Curry, T.M., Hazelton, R.D. et al. The geographic pathology of dental disease in Canadian central Arctic populations. *J Can Dent Assoc* 38:288-296, 1972.
32. Curzon, M.E. and Curzon, J.A. Dental caries in Eskimo children of the Keewatin District in the Northwest Territories. *J Can Dent Assoc* 36:324-325, 1970.
33. Curzon, M.E. and Curzon, J.A. Dental caries prevalence in the Baffin Island Eskimo. *Pediat Dent* 1:169-174, 1979.
34. Mayhall, J.T. Canadian Inuit caries experience 1969-1973. *J Dent Res* 54:1245, 1975.
35. Mayhall, J.T. Sucrose taste sensitivity in Canadian Inuit and its relationship to dental caries. *J Dent Res* 53:940, 1974.
36. Bang, G. and Kristoffersen, T. Dental caries and diet in an Alaskan Eskimo population. *Scand J Dent Res* 80:440-444, 1972.
37. Poole, A.E., Poole, D.A., Harper, L.R. et al. Genetic and environmental factors in the etiology of dental disease in the Aleut. *J Dent Res* 56:Spec Publ 79-89, 1977.
38. Mayhall, J.T. Inuit culture change and oral health: a four year study. In: Shepard, R.J. (ed). *Circumpolar Health*, Toronto, University of Toronto Press, 1976.
39. Kristoffersen, T. and Bang, G. Periodontal disease and oral hygiene in an Alaskan Eskimo population. *J Dent Res* 52:791-796, 1973.
40. Titley, K.C. and Bedhard, D.H. An evaluation of dental care in the community of Sandy Lake, Sioux Lookout Zone, 1973-1983. *J Can Dent Assoc* 52:923-928, 1986.
41. Schneyer, L.H., Pigman, W., Hanahan, L. et al. Rate of flow of human parotid, sublingual and submaxillary secretions during sleep. *J Dent Res* 35:109-114, 1956.
42. Lear, C.S.C., Flanagan, J.B. Jr. and Moorrees, C.F.A. The frequency of deglutition in man. *Arch Oral Biol* 10:83-99, 1965.
43. Lichter, I. and Muir, R.C. The pattern of swallowing during sleep. *Electroenceph Clin Neurophysiol* 38:427-432, 1975.
44. Dawes, C. The effects of flow rate and duration of stimulation on the concentrations of protein and the main electrolytes in human submandibular saliva. *Arch Oral Biol* 19:887-895, 1974.
45. Croll, T.B. The three-year-myth. *Pediat Dent* 9:86-87, 1987.
46. Goepford, S.J. An infant oral health program: the first 18 months. *Pediat Dent* 9:8-12, 1987.

The Successful Dental Practice
The Institute for Practice Development
presents a 1 day seminar at the beautiful
Hyatt Orlando in Florida, just minutes
from Disney World.

**FULLY ACCREDITED BY THE
ACADEMY OF GENERAL DENTISTRY**

The first Saturday in each month from July 1988 -
June 1989. For registration or information call:

(800) 537-1726 or (813) 351-7699

Faculty: Stephen D. Eingorn, D.M.D.

Doctors \$175(in advance)-\$195(at door)-\$95 (aux. or spouse)

The seven wonders of the world.

1

Does Tridont take a percentage of my gross?

No. Tridont does not share in the profits of dentists who practice in Tridont Dental Centres. In return for a flat rate monthly management fee, Tridont provides Centres with support services in accounting, financial reporting, payroll, equipment procurement, leasing and recruitment – a complete business management system, with additional services available.

2

How can Tridont benefit me as an established practitioner?

Conversion to a Tridont Dental Centre is an excellent option for established dentists who wish to be relieved of business management concerns, receive cash for assets, and remain in an ownership position. Tridont makes a cash payment for equipment and leaseholds, then leases them back to the new partnership, which consists of the existing dentist(s) and any new partners. Tridont then provides the complete range of support services which all Tridont Dental Centres receive.

3

Who really owns the practice?

Tridont does not own any Dental Centre, nor does the company have an ownership position in any practice. Each Tridont Dental Centre is owned by a partnership comprised of practicing dentists. The partners receive a share in the profits of the Centre, and retain full professional autonomy in terms of treatment modalities, laboratory work and referrals.

4

Does Tridont set my work hours?

No. The practitioners in each Centre act as a team and set work schedules accordingly. Most Tridont Dental Centres are established with at least three participating dentists in order to provide the convenient hours of operation which patients prefer.

5

Do I have to meet a quota each month?

No. Tridont does not set performance quotas for the Centres or dentists. Targets for growth and profitability of each Centre are set by the dentists who practice in them. Tridont Dental Centres are not walk-in clinics, and in most cases follow the approved fee guide developed by provincial licencing bodies. To further assist growth of the Centres, the Tridont Home Office support team can be called upon to provide management guidance and consultation.

6

Who selects my staff?

Each Tridont Dental Centre has the freedom to independently select dental associates, assistants and hygienists to meet staffing requirements. As part of the ongoing range of services provided to Centres, Tridont operates a national placement program which attracts some of the most highly skilled practitioners and support staff available anywhere in Canada.

7

Must I participate in prepaid dental programs?

The decision to participate in prepaid dental programs rests solely with each dentist who practices in a Tridont Dental Centre. Tridont Health Care Inc. does have an ownership position in Dental Maintenance Organization (DMO) Inc., which administers prepaid dental benefits programs substantially different from those in the United States. DMO is a separate entity from Tridont Dental Centres, and there is no obligation to join the DMO provider network.

If you're wondering about other aspects of the Tridont system, we've prepared a detailed information folder which you can request by telephone.



Call Tim Brown, Licencing Representative, in Toronto at 865-9211 or Toll Free in Ontario 1-800-268-8217; elsewhere in Canada 1-800-268-8589.

Tridont Health Care Inc.



Isn't it time you called Tandy

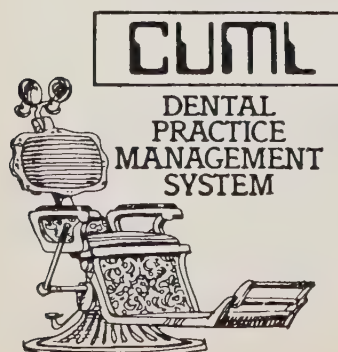
You've invested years of time and energy into your practice just to spend most of your day doing paperwork. Instead of doing bridgework, you do bookkeeping. Instead of filling cavities, you fill file drawers with patient records. It's time you eliminated the headache of managing your practice. It's time you called Tandy!

Tandy Computer Centres have the solution to your needs: The Dental Practice Management System (DPMS), a proven business solution (with close to 100 satisfied users) designed and supported by the Canadian company CUML. With DPMS you'll be able to practice dentistry again — the system will take care of all your management concerns.

Patient management, bookkeeping and routine paperwork are out of your hands and into DPMS; where they are programmed to provide you with accuracy, dependability and easy access. You'll find DPMS simple to use, and it operates on a full range of Tandy (IBM® compatible) Computers sold, serviced and supported by Tandy Computer Centres.

So if you find yourself with a pen in your hand instead of a probe, consider Tandy and CUML's Dental Practice Management System. Not only will you have a lot more time to devote to your patients, but you'll experience improved efficiency and profits. It's time to manage better — call your nearest Tandy Computer Centre today!

IBM is a registered trademark of International Business Machines Corp.



Outside Toronto, call:

CUML
2301 Haines Road
Mississauga, Ontario L4Y 1Y5
(416) 272-3300

TANDY COMPUTER CENTRES

In Toronto, call a Tandy Computer Centre at:

Finch Centre
2349 Finch Ave. W.
741-5163

Mississauga
1706 Dundas St. E.
273-4400

North Toronto
1920 Avenue Rd.
787-1821

Scarborough
4271 Sheppard Ave. E.
292-6444

Downtown
329 Bay Street
365-7207

COMPARATIVE EFFECTS OF FMR PROGRAMS in fluoridated and unfluoridated communities

Jean-M. Brodeur, PhD

Paul L. Simard, DDPH

Marie Demers, MSc

Laval, Quebec

André-P. Contandriopoulos, PhD

Geneviève Tessier, MSc

Yves Lepage, PhD

Montreal

Diane Lachapelle, MSc

Laval, Quebec

ABSTRACT

To investigate the anticaries effectiveness of a fluoride mouthrinse program (FMR) in fluoridated and unfluoridated communities, 1019 fifth graders from 22 schools were selected; the schools were randomly allocated into treatment and control groups. Of these children, 82.4 per cent accepted to be included in the project. The treatment groups received a weekly 0.2 per cent NaF neutral solution in classrooms. After 20 months, 699 children remained (83.2 per cent). At baseline and after 20 months the children were examined by dentists previously calibrated.

The mean DMFS was lower in fluoridated communities than in unfluoridated but for each community there was no difference at baseline between FMR and control groups. After 20 months of application of the program the mean DMFS increments were significantly different in the fluoridated community only. However, after adjustment for extraneous factors, the mean DMFS increments were respectively 0.50 and 0.95 for the treatment and control groups in fluoridated communities and 2.12 and 2.31 for the treatment and control groups in unfluoridated communities; these results were no longer significant.

SOMMAIRE

Pour savoir si un programme de rinçage buccal avec un produit fluoruré combat efficacement la carie dans les milieux où l'eau est fluorurée ou non, on a choisi 1019 élèves de cinquième année répartis dans 22 écoles qui, au hasard, ont servi de groupes traités et de groupes témoins. Sur le nombre d'élèves, 82,4 pour cent ont accepté de participer au programme. Chaque semaine, les groupes traités ont reçu à l'école une solution neutre contenant 0,2 pour cent de NaF. Après 20 mois, il restait 699 élèves (83,2 pour cent) qui furent examinés par des dentistes calibrés au préalable.

Pour les élèves des milieux où l'eau est fluorurée, la moyenne des dents cariées, absentes ou obturées (CAO) était inférieure à celle des élèves des milieux où l'eau n'est pas fluorurée, mais en général il n'y avait aucune différence entre les groupes traités et les groupes témoins. Après 20 mois, l'augmentation de l'indice CAO pour le groupe traité et le groupe témoin différait seulement en milieu fluoruré. Toutefois, compte tenu des facteurs extérieurs, l'indice CAO était respectivement de 0,50 et 0,95 pour les groupes traités et les groupes témoins des milieux où l'eau est fluorurée, et de 2,12 et 2,31 pour ceux des milieux où l'eau n'est

pas fluorurée. Ces résultats ne sont donc pas significatifs.

Introduction

Topical fluoride mouthrinse application is a popular caries prevention method in public programs and is currently second only to water fluoridation. Numerous studies, for the most part carried out in schools, are associated with annual caries reductions ranging from 11 to 54 per cent.¹⁻⁵ Alone, the percentage of caries reduction is not very indicative of the benefits obtained. When it is expressed in terms of caries-free tooth surfaces, this reduction is equivalent to an annual gain of 0.05 to 0.76 surfaces in unfluoridated communities⁶ and of 0.06 to 0.66 surfaces in fluoridated communities.⁷

Because evaluation of FMR is often carried out on community programs rather than designed clinical trials, comparisons are often made to historical controls, which leads to an overestimate of the benefit attributable to FMR by not considering the secular decline in caries over the past 15 years. Bohannon et al⁸ have shown that the use of concurrent longitudinal control groups is essential to estimate the effectiveness of mouthrinses. Moreover, the use of historical controls may lead to a bias on the part of the examiner as the examinations cannot be

Key words: prevention, dental caries, mouthwashes, fluorides, clinical trials, control groups.

carried out blindly. Another point capable of distorting the evaluation of the effectiveness of mouthrinse programs is the failure to take into account the widespread use of fluorides in drinking water, supplements and dentifrices. These potentially confounding factors may result in a major reduction in caries which must therefore not be solely attributed to mouthrinse.

There seems to be a certain degree of confusion between the notion of efficacy of fluoride mouthrinse, evaluated during controlled clinical tests, and that of effectiveness measured when the program is implemented at the community level with reduced compliance and problems of application. To isolate the effect of the mouthrinse, several researchers have supplied their subjects with a non-therapeutic dentifrice, thereby excluding the potential effect of a fluoride dentifrice.^{9,10} Moreover, Radike et al¹⁰ eliminated from the analysis all children who missed 25 per cent of the mouthrinses. Taking such steps, however, reduces the generalization of the study results to the real situation in the field.

The effectiveness of a fluoride mouthrinse in communities with fluoridated water has also been questioned.⁷ The National Preventive Dentistry Demonstration Program does not show a reduction in caries attributable to mouthrinse in the fluoridated communities and only points to an annual saving of 0.11 surfaces (FMR and tablets) in some unfluoridated communities.¹¹ The authors attribute the low effectiveness of FMR in terms of surfaces saved to the decline in caries over the past few years. This research has come to the conclusion that, contrary to earlier studies,¹² fluoridated mouthrinse does not significantly reduce caries and that given its poor cost/effectiveness ratio, it should not be the subject of a generalized program in schools.

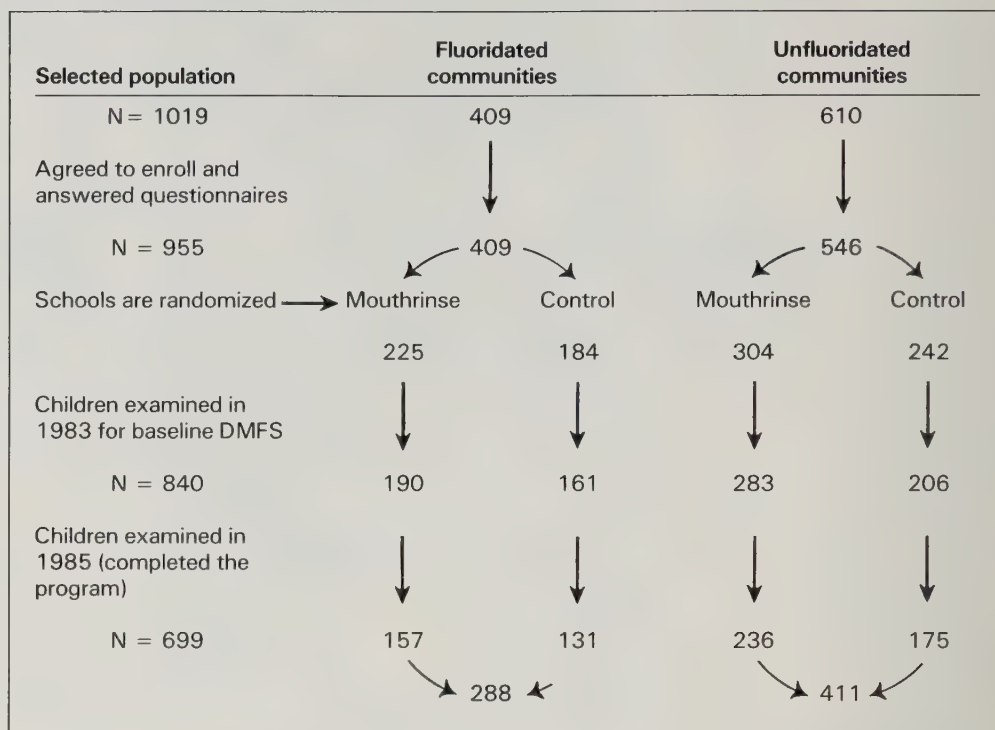
The purpose of this article is to: (1) determine the number of surfaces saved through the use of fluoride mouthrinse in fluoridated and unfluoridated communities under conditions prevailing in public programs; and (2) demonstrate the importance of controlling confounding factors which may influence the differences observed between the groups.

Methods

Two fluoridated (Lakeshore and Laval areas) and two unfluoridated communities (Trois-Rivières and St-Jérôme areas) were chosen to participate in the study. In all, 1019 fifth graders were selected from 22 schools. Boys and girls were

TABLE I

Participation to the study: Comparison between fluoridated and non fluoridated communities



equally represented. At the beginning of the study, the children were nine to 11 years old with a mean age of 10.5 (S.D. = 0.4). In fluoridated communities, 85.4 per cent of the children were French Canadian; in unfluoridated communities this proportion reached 99.5 per cent. The schools were randomized into experimental and control groups.

Over a 20-month period, from October 1983 to May 1985, the children of the experimental groups rinsed their mouth once a week with a neutral 0.2 per cent sodium fluoride solution for one minute. An account was kept of each child's participation in the rinses. This intervention took place at school under the supervision of the teacher and in cooperation with school nurses and dental hygienists, thereby reproducing the conditions prevailing in such a public program. The duration and frequency of the rinses as well as the quality of the mouthrinse were monitored. During the period under study, the children of the experimental and control groups were subjected to the same dental interventions, except for the experimental condition under study.

Five dentists in charge of dental health for Community Health Departments participated in the examination procedures at the beginning of the study and 20 months later to determine the DMFS index on permanent teeth. Radiographs were not taken during these examinations. A train-

TABLE II

Mean DMFS on permanent teeth at baseline by communities

Fluoridated communities	n	1983	(S.D.)
Mouthrinse group	157	3.20	(3.45)
Control group	131	3.60	(3.76)
t		-0.92	
p		0.358	
Unfluoridated communities			
Mouthrinse group	236	5.27	(4.23)
Control group	175	5.08	(4.46)
t		0.45	
p		0.651	

ing and standardization session on the indices in use was carried out before each examination period. The percentages of agreement between examiners varied between 94.7 per cent and 99.3 per cent. At the first examination, the examiners did not know to which group the children belonged, whereas at the second examination they did know.

Before assigning the schools to the experimental and control groups, a pre-tested questionnaire was administered to the parents of the children selected. It dealt with the brushing habits, fluoride intake and sociodemographic characteris-

tics of the participants. Some questions were also directly asked of the children during the dental examination. A three-day food record was completed in May 1984 and was used to determine sugar consumption. The participation rate was 82.4 per cent for the initial examination, or 840 children. Of that number, 83.2 per cent completed the final examination, namely 699 children.

The DMFS indices at the beginning and end of the study and the dental caries reduction were compared for each of the two communities using the t-test. The means were adjusted according to certain factors using ANCOVA.

Results

Participation in the study

The participation in the study and the distribution of children according to the community and experimental condition are given in **Table I**. In fluoridated communities there was no significant difference between the experimental and control groups with respect to their participation in the study; however, in unfluoridated communities the two groups differed by their consent to the study and the number of examinations undergone: both of them were lower in the control group ($p < 0.01$).

Comparability of experimental and control groups

In fluoridated communities the baseline caries experience was 3.20 DMFS for the experimental group and 3.60 DMFS for the control group (**Table II**). This difference although sizeable was not significant. In unfluoridated communities, the baseline DMFS index was 5.27 in the mouthrinse group and 5.08 in the control group; this difference was not significant. In both types of community, children from experimental and control groups were similar regarding eight of the 13 characteristics examined: sex, age, number of parents, SES level, use of fluoride dentifrice, tooth brushing habits, use of fluoride supplements and other sources of fluoride. Slight differences between the two groups were noted according to the previous exposure to fluoridated drinking water, use of fluoride mouthrinse at home, number of children in the family, denture wearing among parents and education of parents. The results were adjusted by a covariance analysis to take into account these differences.

Caries increment

In fluoridated communities the caries increment during the study was significantly lower in the group exposed to

FMR: it was 0.44 surfaces (S.D. = 1.89) as compared to 1.04 surfaces (S.D. = 2.52) in the control group and represents a saving of 0.60 permanent surfaces after 20 months or a reduction in DMFS of 57.7 per cent for the mouthrinse group (**Fig. 1**). In unfluoridated communities the increments were, respectively, 2.16 surfaces (S.D. = 3.40) for the experimental group and 2.33 surfaces (S.D. = 3.53) for the control group (**Fig. 2**), giving a saving of 0.17 permanent surfaces or a reduction of 7.3 per cent for the mouthrinse group. This difference was not statistically significant.

Caries increment after adjustment for extraneous variables

To ensure that the results observed were not attributable to differences between the experimental and control groups, a covariance analysis was conducted to control the effect of the factors mentioned earlier. After adjustment, the difference noted in fluoridated communities was no longer significant: the caries reduction in the experimental group as compared to

the control group was then 0.45 surfaces. The difference observed earlier was thus partly attributable to differences between experimental and control groups with respect to the factors monitored during the analysis. In unfluoridated communities the adjustment slightly reduced the DMFS increment both in the experimental and control groups: it was respectively 2.12 and 2.31, and the difference was still not statistically significant.

Discussion

The results have shown that FMR had no cariostatic effect after adjustment for extraneous variables in fluoridated and unfluoridated communities after 20 months of weekly applications. Before adjustment, the saving noted in fluoridated communities was equivalent to 0.36 permanent surfaces per year, which is similar to the saving of 0.32 surfaces found in a study conducted in fluoridated communities in Des Moines among children 12.8 years of age and also using a longitudinal control group.¹⁵ This caries reduction in the group exposed to mouth-

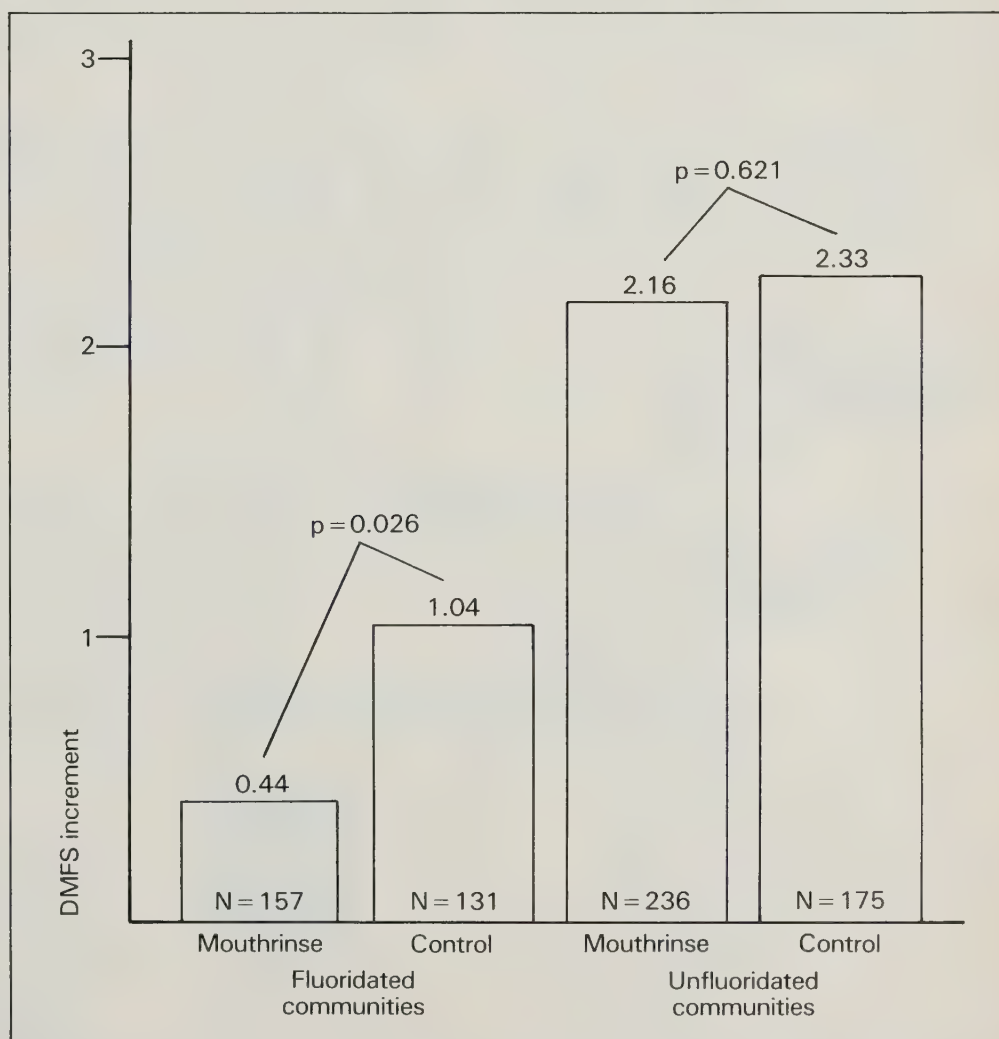


Fig. 1. Mean DMFS increment on permanent teeth between 1983 and 1985 among children who completed the program in fluoridated and unfluoridated communities.

rinse could be partially attributable to differences between the experimental and control groups since the adjustment of the DMFS increment for previous exposure to fluoridated drinking water and certain sociodemographic variables reduced the difference observed between the groups to the point of making it not significant.

The absence of the cariostatic effect of the mouthrinse noted in unfluoridated communities and after adjustment in fluoridated communities is comparable to the results observed by Klein et al,¹¹ who observed no effect when FMR was administered together with fluoride tablets in three of the four cohorts monitored over a four-year period in fluoridated and unfluoridated communities. In their cohort of fifth graders from unfluoridated communities, the saving was only 0.21 surfaces and was equivalent to a non-significant 4.4 per cent reduction in the mouthrinse group. In the present study, a saving of 0.17 surfaces, equivalent to a 7.3 per cent reduction in the group

exposed to the mouthrinse, was observed over a 20-month period. This reduction is much lower than the 0.69 surfaces found for the same length of time in another unfluoridated community in Quebec but among younger children.¹ Another study on the effectiveness of fluoridated mouthrinse carried out over a three-year period among 365 Danish second and third graders showed no difference between the mouthrinse group and the control group.¹²

It could be argued that the study was not of long enough duration to detect a significant difference between the mouthrinse group and the control group. But, as mentioned earlier, a study of the same length conducted in southern Quebec has shown a caries reduction in the mouthrinse group as compared to the control group.¹ Moreover, Klein et al¹¹ in their study noted the prevention of as much decay in the first two years of program application as in the last two. One might also think that the beneficial effect of the mouthrinse would not manifest itself until

the program was over. To that end, Koch¹⁴ measured the effect of the daily application of fluoridated mouthrinse on the DMFS index during the three years of program application as well as during the two subsequent years and uncovered no prolonged prophylactic effect of the mouthrinse beyond the application period.

Of the 840 children who underwent the initial dental examination and participated at the beginning of the program, 16.8 per cent changed schools in 1985 or could not be re-examined. This attrition rate is comparable to that observed in other studies dealing with children of a similar age^{2,11,13} and is about the same in fluoridated (17.9 per cent) and unfluoridated communities (16.0 per cent).

Other studies using longitudinal control groups observed a cariostatic effect of fluoride mouthrinse administered on a weekly basis for periods varying between 20 months and three years with experimental and control groups presenting no difference in caries prevalence at baseline in fluoridated regions¹³ and unfluoridated communities.^{1,2} It is possible that these differences are attributable to a lack of comparability between mouthrinse and control groups regarding factors susceptible to influence caries development, to differences in program application (e.g. inclusion of other prophylactic measures), to age differences in the samples under study or to a higher average number of rinses per child. Other studies excluded from the analysis children whose participation in the program seemed insufficient, thereby making difficult any comparison with the real situation surrounding the application of a community health program where compliance problems are often encountered.¹⁵ Finally, some studies indicated a lack of agreement among examiners, which led them to reproduce the results according to each examiner.^{2,13}

The absence of a cariostatic effect of the FMR is supported by the results of the studies showing that topical fluoride application measures have no additive effect regarding caries reduction when applied concurrently.^{16,17} These studies have shown that the combined effect of fluoride dentifrice and mouthrinse had no greater effect than either used alone. More than 90 per cent of the children in this study already used fluoride dentifrice at home; the mouthrinsing effect would therefore be concealed by that of the dentifrice.

This study revealed the low effectiveness of an FMR program after 20 months of application in fluoridated and unfluori-

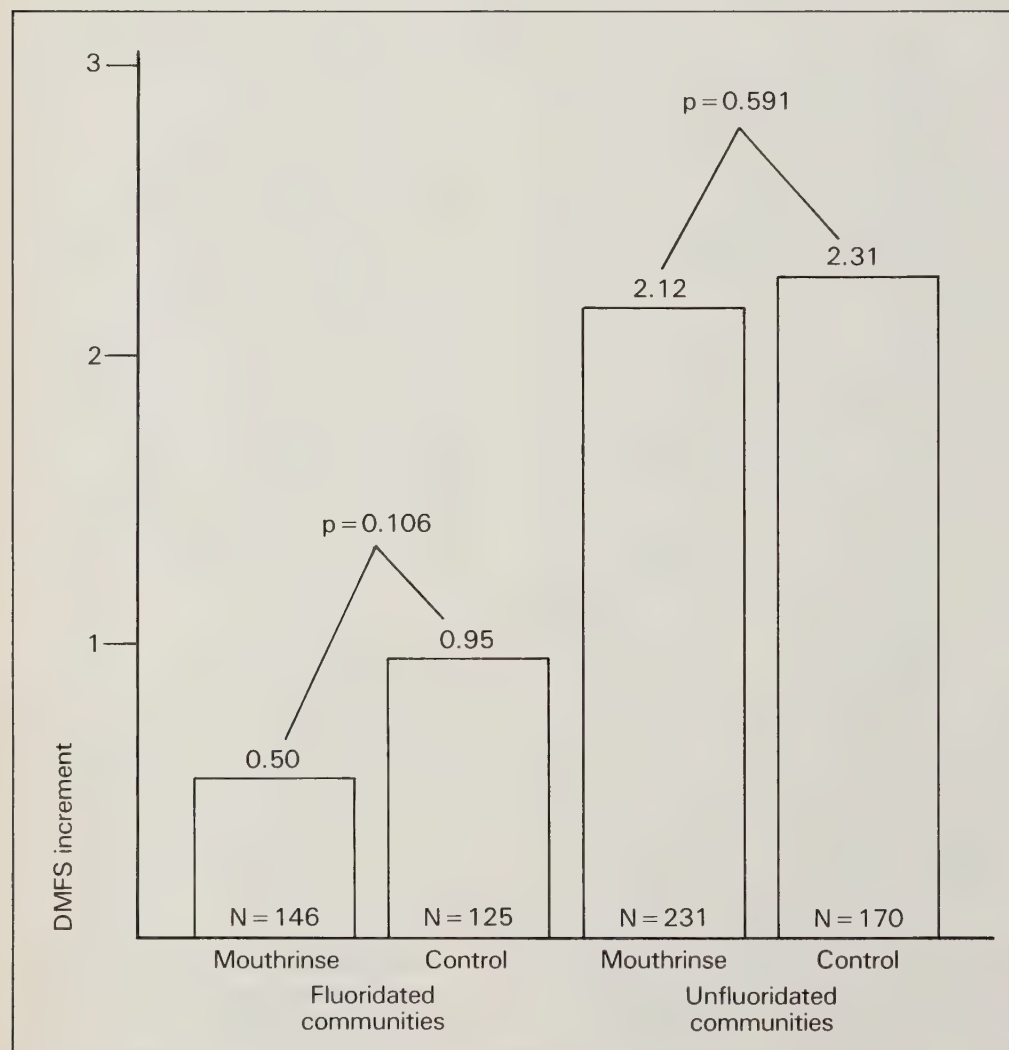


Fig. 2. Mean DMFS increment on permanent teeth between 1983 and 1985 when adjusted for extraneous variables.

dated communities. It also showed the importance of ascertaining the comparability of the experimental and control groups for variables other than the baseline DMFS since the adjustment for these factors, which vary from one group to the other, is likely to modify the difference in caries increment between the two groups. The inclusion of these elements in the evaluation of the effectiveness of fluoridated mouthrinse sheds new light on the question. Δ

This project was supported by the National Health Research and Development Program, Health and Welfare Canada, Grant No. 6605-1869-07.

Drs. Brodeur and Simard, Marie Demers and Diane Lachapelle-Harvey are on the staff of École de médecine dentaire, Université Laval.

Dr. Contandriopoulos and Geneviève Tessier: Groupe de recherche interdisciplinaire en santé, Université de Montréal.

Yves Lepage is on the staff of the Département de mathématiques et statistiques, Université de Montréal.

Reprint requests to Dr. Jean-Marc Brodeur, École de médecine dentaire, Université Laval, Sainte-Foy, Québec G1K 7P4.

References

1. Clark, D.C., Roberts, G., Tessier, C. et al. The results after 20 months of a study testing the

efficacy of a weekly fluoride mouthrinsing program. *J Pub Health Dent* 45:252-256, 1985.

2. Heifetz, S.B., Meyers, R.J. and Kingman, A. A comparison of the anticaries effectiveness of daily and weekly rinsing with sodium fluoride solutions: final results after three years. *Pediatr Dent* 4:300-303, 1982.

3. Leske, G.S., Ripa, L.W. and Green, E. Post-treatment benefits in a school-based fluoride mouthrinsing program. Final results after 7 years of rinsing by all participants. *Clin Prevent Dent* 8:19-23, 1986.

4. Leverett, D.H., Sveen, O.B. and Jensen, O.E. Weekly rinsing with a fluoride mouthrinse in an unfluoridated community: Results after seven years. *J Pub Health Dent* 45:95-100, 1985.

5. Miller, A.J. and Brunelle, J.A. A summary of the NIDR community caries prevention demonstration program. *JADA* 107:265-269, 1983.

6. Stamm, J.W., Bohannon, H.M., Graves, R.C. et al. The efficiency of caries prevention with weekly fluoride mouthrinses. *J Dent Educ* 48: 617-626, 1984.

7. Bohannon, H.M., Stamm, J.W., Graves, R.C. et al. Fluoride mouthrinse programs in fluoridated communities. *JADA* 111:783-789, 1985.

8. Bohannon, H.M., Graves, R.C., Disney, J.A. et al. Effect of secular decline in caries on the evaluation of preventive dentistry demonstrations. *Pub Health Dent* 45:83-89, 1985.

9. Laswell, H.R., Packer, M.W. and Wiggs, J.S. Cariostatic effects of fluoride mouthrinses in a fluoridated community. *J Tenn Dent Assoc* 55: 198-200, 1975.

10. Radike, A.W., Gish, C.W., Peterson, J.K. et al. Clinical evaluation of stannous fluoride as an anticaries mouthrinse. *JADA* 86:404-408, 1973.

11. Klein, S.P., Bohannon, H.M., Bell, R.M. et al. The cost and effectiveness of school-based preventive dental care. *Am J Pub Health* 75: 382-394, 1985.

12. Poulsen, S., Kirkegaard, E., Bangsbo, G. et al. Caries clinical trial of fluoride rinses in a Danish Public Child Dental Service. *Commun Dent Oral Epidemiol* 12:283-287, 1984.

13. Driscoll, W.S., Swango, P.A., Horowitz, A.M. et al. Caries-preventive effects of daily and weekly fluoride mouthrinsing in a fluoridated community: Final results after 30 months. *JADA* 105:1010-1013, 1982.

14. Koch, G. Caries increment in schoolchildren during and two years after end of supervised rinsing of the mouth with sodium fluoride solution. *Odont Rev* 20:323-330, 1969.

15. Heifetz, S.B., Franchi, G.J., Mosley, G.W. et al. Combined anticariogenic effect of fluoride gel trays and fluoride mouthrinsing in an optimally fluoridated community. *Clin Prev Dent* 6:21-28, 1979.

16. Ashley, F.P., Mainwaring, P.J., Emslie, R.D. et al. Clinical testing of a mouthrinse and a dentifrice containing fluoride. A two-year supervised study in school children. *Br Dent J* 143: 333-338, 1977.

17. Blinkhorn, A.S., Holloway, P.J. and Davies, T.G.H. Combined effects of a fluoride dentifrice and mouthrinse on the incidence of dental caries. *Commun Dent Oral Epidemiol* 11:7-11, 1983.

METTEZ-NOUS A VOTRE SERVICE !

Le CDSPI est votre organisme et vous propose des services d'assurance, de retraite et d'information. Il appartient aux dentistes et est administré par eux sur une base non lucrative : sa seule mission consiste à répondre à vos besoins dans ces domaines. Appelez donc dès aujourd'hui pour obtenir de plus amples informations et mettez-nous à votre service !

COMPÉTENCE

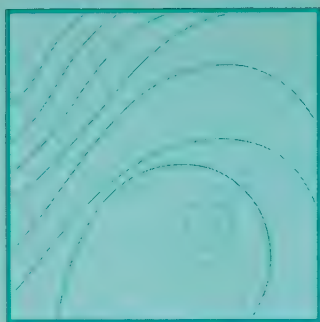
ACCESSIBILITÉ

DÉTERMINATION



CDSPI

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807
1.800.268.34.11 Québec et Ontario, sauf pour la région avec l'indicatif régional 807
497.71.17 Toronto et environs



Another Preeminent Program!

The 3rd International Symposium on

Periodontics & Restorative Dentistry

The Westin Hotel, Boston
April 28-30, 1989

CHAIRMEN

Gerald M. Kramer, DMD
Myron Nevins, DDS

PRELIMINARY PROGRAM

Friday, April 28, 1989

Temporomandibular Joint

Moderator: Leonard Abrams

Lecturers: Peter Dawson, Frank Celenza, Carl Rieder, Kenneth Rotskoff, Parker Mahan

Deep Anterior Periodontal Lesions

Moderator: Morton Amsterdam

Lecturers: Gerald M. Kramer, Raul Caffesse, Leonard Hirschfeld

Management of the Edentulous Ridge

Moderator: Gerald Bowers

Lecturers: Burton Langer, Herman Corn, David Garber

Saturday, April 29, 1989

Tooth-Bonded Restorations

Moderator: John McLean

Lecturers: Gordon Christensen, Kenneth Malament, Richard Simonsen, Ralph Phillips

Management of Multirooted Teeth

Moderator: Edwin S. Rosenberg

Lecturers: Alan M. Polson, Robert G. Schallhorn, Jan Lindhe

The Angular Osseous Periodontal Lesion

Moderator: John Prichard

Lecturers: William Becker, Clifford Ochsenbein, James Mellonig

Sunday, April 30, 1989

The Predictability of Implant Dentistry

Moderator: George Zarb

Lecturers: Tomas Albrektsson, Roland Meffert, Axel Kirsch, William R. Laney, Dennis C. Smith

The Placement of the Cervical Margin of a Full-Coverage Restoration

Moderator: Leo Talkov

Lecturers: Lloyd Miller, Howard M. Skurow, Peter Schärer

Periodontal Preparation for Restorative Dentistry

Moderator: Mick Drago

Lecturers: J. David Kohn, J. Gary Maynard, Myron Nevins

Highlights

- ▶ Registration Fee: \$400
- ▶ CE Credits
- ▶ Technical Exhibits
- ▶ Special one-day program for dental hygienists
- ▶ Full calendar of social events

SPONSORED BY:

The International
Quintessence
Publishing Group

Send the coupon below to receive further information as it becomes available.

Please send me a program and registration form for *The 3rd International Symposium on Periodontics & Restorative Dentistry*.

Name _____ Tel. _____
(Please print.)

Address _____

City _____ State _____ Zip _____

SEND COUPON TO: Quintessence Publishing Co., Inc., 870 Oak Creek Drive, Lombard, IL 60148-6405. Tel. 800/621-0387 (outside IL); 800/826-2958 (inside IL); 312/620-4443.

Announcements

November/Novembre 1988

November 10-13: Joint Meeting of the Canadian and American Pain Societies in Toronto at the Hilton-Harbour Castle Hotel. For information, contact: Canadian Pain Society, 3655 Drummond St, Room 1202, Montréal, Québec H3G 1Y6.

November 13-16: The Saul Kamen Seminar in the Management and Treatment of the Developmentally Disabled Dental Patient sponsored by the Dept of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center State University of New York at Stony Brook. For further information, please contact: Ann J. Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York 11042 U.S.A. (718) 470-8650.

November 18: Sicher Memorial Lecture sponsored by the Alpha Omega Dental Fraternity at the Westin Bayshore Hotel in Vancouver, BC. "New Horizons in Dentistry" with David Garber. For registration contact: Dr. W.C. (Fred) Weinstein, #515-750 W Broadway, Vancouver, BC V5Z 1H4.

November 19-20: Restorative Techniques For Osseointegrated Implants Two Day OSI Certification Course — Branemark endosseous implants — in Palms Springs, California. Basic review of surgical implantology and much more. For more information, contact Dr. Albert Weissman, Desert Dental Implant Center (619) 341-7881.

November 20-23: 39th Annual Educational & Scientific Meeting of the Ontario Public Health Association "Equity in Health". For information, contact: Conference Pre-registration, Ontario Public Health Association, 102 Adelaide St E., 2nd floor, Toronto, Ont. M5C 1K9.

Novembre 21-24: Congrès international de l'Association dentaire française et le Festival international du Film et de la Vidéo dentaires à Paris. Renseignements: A.D.F., 92, av. de Wagram, 75017 Paris, France.

November 23-25: Swedish Dental Society in Stockholm Sweden. For information, write: Ms A.C. Nackstad, Nybrogatan 53, S-114 40 Stockholm, Sweden.

November 23: Centennial Celebration! 100 years of Dentistry at U of T. Dental Alumni Association Centennial Dinner/Dance (night before Winter Clinic) at L'Hotel Ballroom in Toronto. For reservations and further information, contact: Dentistry Department of Alumni Affairs (416) 979-4389.

November 24: 51st Annual Winter Clinic Toronto Academy of Dentistry at the Metropolitan Toronto Convention Centre, 255 Front Street W, Toronto, Ont. For information, contact the Academy of Dentistry at (416) 967-5649.

November 28-December 2: Osseointegration in Clinical Dentistry Clinical Training Course in Malmo Sweden. For more information, contact: Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S21421 Malmo, Sweden.

December/Décembre 1988

December: 43rd Indian Dental Association Conference in Pune India. For more information, contact: The Indian Dental Association, 20-A D.B. Road, R.S. Puram, Coimbatore 641 002 India.

December 2: First National Bilingual Low Power Laser Therapy Conference in Ottawa, Ontario. Contact: Ms Lucie Brosseau, Physiotherapy Programme, Health Sciences Faculty, University of Ottawa, 451 Smyth Rd, Ottawa, Ont K1H 8M5.

December 2-4: 12th Annual Session and Scientific Meeting of the Association for Dental Sciences of the Republic of China in Taipei, Taiwan. For information, contact: Dr. Kun-Chee Chen, 7F, No. 120, Sec 2, Chung Hsiao E Rd, Taipei, Taiwan.

January/Janvier 1989

January 14-28: 18th International Alpine Dental Conference in Courchevel 1850 France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogen Square, London SW1X 0JP Tel: 01-235 0787.

January 15-21: Barbados Dental Association Mid-Winter Meeting. For more information, contact: Dr. O.F. Weel, President, Barbados Dental Association, P.O. Box 95, Bridgetown, Barbados.

January 27-29: Dentistry for the Nineties An International Dental Congress sponsored by the College of General Dental Practitioners of Sri Lanka. For details, contact: Dr. L.S.W. Dassanayake, International Dental Congress, College of General Dental Practitioners of Sri Lanka, 439 Elvitigala Mawatha, Colombo 5, Sri Lanka.

February/Février 1989

February 2-4: Expanding Dentistry's Horizons The Miami Winter Meeting sponsored by the East Coast Dental Society at the Hyatt Regency Miami, Florida. For more information, contact: East Coast Dental Society, 420 S. Dixie Highway, Suite 2E, Coral Gables, FL 33146 U.S.A. (305) 667-3647.

February 4: Centennial Ball of the Xi Psi Phi Dental Fraternity at the Royal York Hotel in Toronto. For more information, write: Dr. Don Ducasse, 4211 Yonge St., Suite 204, Willowdale, Ont M2P 2A9.

February 17-21: Annual Convention of the Jamaica Dental Association at Mallard's Beach Hotel, Ocho Rios, Jamaica. For information, contact: Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica WI.

March/Mars 1989

March 6-10: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. For information, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

March 16-19: First Asian Congress on Oral and Maxillofacial Surgery organized by the Asian Association of Oral and Maxillofacial Surgeons in Manila, Philippines. Invited speakers include E. Steinhäuser (FDR), J. Langdon (UK), Bruce Epker (USA). For further details, write: Congress Secretariat, First Asian Congress on Oral and Maxillofacial Surgery, c/o Philippine Heart Center, Suite 401, East Avenue, Quezon City 1100, Philippines.

March 18-25: 19th International Alpine Dental Conference in Courchevel 1850, France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogan Square, London SW1X 0JP. Tel: 01-235 0787.

March 23-24: 8th Jordanian Dental Congress in Jordan. Contact: Dr. Irfan Sultan, PO Box 1326, Amman, Jordan.

April/Avril 1989

April 10-15: 22nd National Dental Congress of the German Dental Association in conjunction with 111th Annual Meeting of the German Society of Dental, Oral and Orthodontic Medicine and the German Dental Industry Association's International Dental Show in Stuttgart, Germany. Contact: Stuttgarter Mess & Kongress GmbH, Am Kochenhof 16, D-7000 Stuttgart 1, West Germany.

April 12-15: Bundesverband der Deutschen Zahnärzte in Killesberg/ Stuttgart, Germany. Contact: Cornelia

Hackenbruch, Bundesverband d. Deutschen Zahnärzte, Universitätsstr. 73, 5000 Köln 41, Germany.

April 26-30: 14th Asian Pacific Dental Congress at the Korea World Trade Center in Seoul, Korea. For further information, please contact: Secretariat of the 14th APDC, c/o Korean Dental Association, PO Box 41 Youngdeungpo, Seoul 150, Korea Tel: (02) 653-3351/3.

April 27-29: Journées dentaires internationales de Nice-Côte d'Azur in Nice France. For information, write: Dr. Jean-Louis Vidal-Revel, President, Journées dentaires internationales de Nice-Côte d'Azur, 37, av. Villermont, 06000 Nice, France.

April 27-30: Ontario Dental Association 122nd Annual Spring Meeting at the Metro Toronto Convention Centre. All members and groups of the dental profession are invited to prepare a clinic for presentation at the Spring Convention. Deadline for applications is November 30, 1988. For more information, contact: Diana Thorneycroft, ODA Headquarter, 234 St. George St, Toronto, Ont. M5R 2P1.

May/Mai 1989

May 1-3: 9th International Dental Meeting in Nice, France. For more information, contact: Mrs. Schmitt, 37, av Villermont, 06000 Nice, France. Tel: (33) 93 98 26 09.

May 21-26: 10th International Conference on Oral and Maxillofacial Surgery in Jerusalem. Contact: Dr. Eli Ronen, Chairman, Organizing Committee, 10th International Conference on Oral and Maxillofacial Surgery, PO Box 5006, Tel Aviv 61500, Israel.

May 24-27: Swiss Dental Association Convention in Switzerland. Contact: Dr. Pierre Spahn, 51, av du Casino, 1820 Montreux, Switzerland.

May 29-June 2: Periodontal and Prosthetic Treatment in Advanced Cases in Malmo, Sweden. For details, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June/Juin 1989

June 1-5: 12th Congress International Association of Dentistry for Children in Athens, Greece. For details, contact: Secretariat, 12th Congress IADC, 41, Skoufa Str, Athens 106 73, Greece.

June 2-3: First International Symposium on Oral AIDS in Montréal, Québec. Contact: Dr. Drasko D. Pekovic, 630 Dorchester West, 25th floor, Montréal, Québec H3B 1W2. Tel: (514) 866-3522.

June 3-6: Alberta Dental Association Convention in Red Deer, Alberta. For information, contact: Dr. M.H. Harach, Convention Chairman, 101-8230 - 105 St, Edmonton, Alberta T6E 5H9.

June 5-9: XXV Congreso nacional y V International de Odontología y Estomatología in Malaga, Spain. For information, contact: SITECC-SIASA, c/o Manuel del Palacio, 16, Edif. Costa Bella, Apto. 3, 29017 MALAGA, Spain. Tel: 29 29 20 - 29 41 43.

June 5-9: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. Contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June 19-23: 14th International Congress of Gerontology in Acapulco, Mexico. For details, contact: Congress Secretariat, Jojutla No. 91, Tlalpan CP 14090, Mexico D.F., Mexico.

June 28-30: 11th International Symposium on Dental Hygiene in Ottawa. For more information, contact: Wilma E. Motley, 18952 Blackhawk St, Northridge, CA 91326, USA.

June 28-July 1: International Association of Dental Research & International Conference on Oral Biology in Dublin, Ireland. For information, contact: Ms. Eloise Bredder, Administrative Assistant, American Association of Dental Research, 1111 - 14th St NW, Suite 100, Washington, DC 20005 USA.

June 30-July 2: Dentistry 89 in Oxford, England. For details, contact: Linda Bridges, Conference Office, British Dental Association, 64 Wimpole St, London W1M 8AL. Tel: 01-935 0875.

THE CANADIAN DENTAL ASSOCIATION

requires:
an Associate Director,
Education and
Accreditation

DUTIES:

- Designated administrative responsibilities.
- Supervision of Accreditation Survey Teams reviewing educational programs preparing Dental auxiliaries.
- Editing of associated survey reports.

QUALIFICATIONS:

- Familiarity with the oral health care team and inter-professional relations.
- Experience in and/or knowledge of dental or dental auxiliary education and accreditation.
- Excellent oral and written communication skills.
- Administrative experience and/or organizational skills.
- Bilingualism: ability to communicate orally and in writing in English and French.
- Willingness to travel extensively and frequently within Canada.

SALARY:

Commensurate with qualifications and experience; the position will be of interest to those with income in the \$30,000+ range.

STARTING DATE:

Negotiable in relation to a target date of March 1, 1989.

PLEASE SUBMIT APPLICATIONS
(BEFORE DECEMBER 15, 1988) TO:
Brian Henderson, Director
Education and Accreditation
Canadian Dental Association
1815 Alta Vista Drive
OTTAWA, ONT. K1G 3Y6

L'ASSOCIATION DENTAIRE CANADIENNE

recherche

un directeur adjoint de l'Éducation et de l'Agrément

FONCTIONS:

- Se charger de responsabilités d'ordre administratif.
- Superviser les équipes d'agrément chargées de revoir les programmes de formation en hygiène dentaire ou soins dentaires.
- Corriger ou réviser les rapports des enquêtes d'agrément.

COMPÉTENCES:

- Connaître les membres qui composent l'équipe dentaire et les rapports entre les diverses professions dentaires.
- Avoir de l'expérience ou des connaissances touchant la formation des patriciens dentaires ou des auxiliaires dentaires et l'agrément des programmes de formation. Avoir d'excellentes aptitudes pour communiquer oralement ou par écrit.
- Avoir de l'expérience en administration ou des aptitudes pour organiser.
- Bilinguisme: être capable de communiquer oralement ou par écrit en français et en anglais.
- Être disposé à voyager beaucoup et souvent au Canada.

SALAIRE:

Suivant les compétences de l'expérience; ce poste intéressera les personnes qui désirent avoir un revenu de 30,000\$ et plus.

ENTRÉE EN FONCTION:

Négociable, la date visée étant le 1^{er} mars 1989.

VEUILLEZ FAIRE PARVENIR TOUTE DEMANDE
(AVANT LE 15 DÉCEMBRE 1988) À:
Brian Henderson, directeur
Éducation et Agrément
Association dentaire canadienne
1815, promenade Alta Vista
Ottawa, Ontario K1G 3Y6



ALBERTA CHILDREN'S HOSPITAL
CHILD HEALTH CENTRE

PEDIATRIC HOSPITAL DENTIST

Applications are invited for the position of full-time Pediatric Hospital Dentist. The successful applicant will be responsible to provide clinical treatment for special needs patients, both inpatients and outpatients, establishing an education component for medical students, pediatric house staff, and medical staff.

The **Alberta Children's Hospital**, Child Health Centre is the primary pediatric teaching centre for Southern Alberta. The Centre is committed to total health care of the child and family.

The applicant must be a graduate of a dental school accredited with either the Canadian Dental Association or the American Dental Association. Preference will be given to a hospital-trained pediatric dentist with relevant work experience.

The Hospital is a smoke free environment.

Please quote competition #RJ0309 when applying to:

ALBERTA CHILDREN'S HOSPITAL
1820 Richmond Road S.W.
Calgary, Alberta
T2T 5C7

ANTI-PLAQUE

Viadent[®]



Sanguinaria Extract

Anti-Plaque/Anti-Gingivitis Preparations

INDICATIONS: Adjunctive treatment for the maintenance of good oral hygiene, control of dental plaque and the reduction and inhibition of gingivitis.

CONTRAINDICATIONS: Other than hypersensitivity to Viadent or one of its components, there are no contraindications to the use of this product.

PRECAUTIONS: It is possible that Viadent Anti-Plaque preparations may interact chemically with other orally applied drugs, although no such drug interactions have been reported to date. Routine swallowing of the product is not recommended.

Staining of dental restorations does not appear to be a problem with Viadent preparations. In laboratory testing with the rinse, only one light-cured composite, Durafil-Kulzer, was slightly yellowed after immersion in the rinse for 24 hours.

Use of Viadent Anti-Plaque preparations is not recommended in pediatric oral health programs due to the alcohol content in the rinse and for the toothpaste, when caries is the principal dental disease and for which a fluoride product is indicated.

The safe use of Viadent Anti-Plaque preparations during human pregnancy and lactation has not been established. As with any drug, use during pregnancy or lactation requires that the expected therapeutic benefit of the drug be considered against the unknown risks to the mother, fetus or neonate.

DOSAGE AND ADMINISTRATION: Viadent Anti-Plaque Oral Rinse: Administer after brushing morning and evening. Rinse twice consecutively using 15 mL per rinse for 15 seconds each time.

Viadent Anti-Plaque Toothpaste: Administer as a ribbon of paste on a toothbrush morning and evening.

SUPPLIED: Viadent Anti-Plaque Oral Rinse: Bottles of 500 mL.
Viadent Anti-Plaque Toothpaste: Tubes of 50 mL, 100 mL.

Ultracaine[®] D-S (articaine HCl) D-S forte

Action

Ultracaine (articaine HCl) has been shown to block conduction by interfering with the process fundamental to the generation of the nerve action potential, namely the large transient increase in the permeability of the membrane to sodium ions that is produced by a slight depolarization of the membrane.

Indications

Ultracaine is indicated for infiltration anesthesia and nerve block anesthesia in clinical dentistry.

Contraindications

Ultracaine is contraindicated in patients with a known hypersensitivity to local anesthetics of the amide group; in the presence of sepsis near the proposed injection site; in patients with severe shock; in patients with any degree of heart block; in patients with existing neurologic disease and in patients with severe hypertension.

When **Ultracaine** with epinephrine is used, the caution required of any vasopressor drug is in order.

Warnings

Methemoglobinemia

As with other local anesthetics, **Ultracaine** is capable of producing methemoglobinemia: this has been observed when an intravenous regional anesthesia technique was used. **Ultracaine**, when used as directed in dental procedures, was not associated with methemoglobinemia.

Usage in Pregnancy

Animal studies have not demonstrated teratogenic or embryotoxic effects of **Ultracaine**. However, safe use in pregnant women has not been established. **Ultracaine** is unlikely to be transferred to the mother's milk since it is rapidly decomposed and eliminated.

Precautions

Resuscitative equipment and drugs should be readily available when any local anesthetic is used. The safety and effectiveness of local anesthetics depend upon proper dosage, correct technique, adequate precautions and readiness for emergencies. **Ultracaine** should be used cautiously in persons with known drug allergies or sensitivities, or suspected sensitivity to the amide-type local anesthetics.

Patients with Special Diseases and Conditions

The p-hydroxybenzoic acid methyl ester contained in **Ultracaine**, as a preservative, has a hydroxy group in the para-position. This fact should be borne in mind in the case of patients with para-group allergy.

Adverse Reactions

Reactions to **Ultracaine** are characteristic of those associated with amide-type local anesthetics.

A major cause of adverse reactions to this group of drugs is excessive plasma levels, which may be due to overdosage, inadvertent intravascular injection, or slow metabolic degradation. Other causes of reactions to these local anesthetics may be hypersensitivity, idiosyncrasy, or diminished tolerance.

Dosage and Administration

As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized, the vascularity of the tissues, the number of neuronal segments to be blocked, individual tolerance and the technique of anesthesia. The lowest dosage, needed to provide effective anesthesia should be administered.

	Infil- tration	Nerve Block	Oral Surgery
Ultracaine	0.5-2.5	0.5-3.4	1.0-5.1
DS forte	mL	mL	mL
Ultracaine	0.5-2.5	0.5-3.4	1.0-5.1
DS	mL	mL	mL

It is recommended not to exceed 7 mg/kg body weight in adults.

To date, **Ultracaine** has not been administered to children under 4 years of age, nor in doses greater than 5 mg/kg in children between the ages of 4 and 12.

Supply

Ultracaine D-S: 4% with epinephrine (1/200,000) and Ultracaine D-S forte: 4% with epinephrine (1/100,000) are available in 1.7 mL cartridges, box of 50 cartridges.

Product Monograph available on request.

References:

1. Dudkiewicz A, Schwartz S, Laliberté R: Effectiveness of Mandibular Infiltration in Children Using the Local Anesthetic Ultracaine[®]. *Canadian Dental Association Journal* 1987; Vol 53 (No. 1): 29-31.
2. Lemay H et al: Ultracaine in conventional operative dentistry. *Journal of the Canadian Dental Association* 1984; 50 (No. 9): 703-708.

Hoechst and [®], Reg. Trademarks of
Hoechst AG, Germany (West)

Hoechst

Engerix®-B

Hepatitis B Vaccine (recombinant)

Description Engerix®-B [hepatitis B vaccine (recombinant)] contains purified hepatitis B surface antigen (HBsAg). It is the product of recombinant DNA technology developed by SmithKline-RIT, s.a., Belgium.

The HBsAg gene from the hepatitis B virus has been cloned by genetic engineering into *Saccharomyces cerevisiae*. The production of the vaccine involves an optimized fermentation process followed by disruption of the yeast cells and extraction of HBsAg. Subsequent purification processes include precipitation steps, ion exchange and gel permeation chromatography, and caesium chloride ultracentrifugation. Standardization of the methods of fermentation and purification procedures ensures lot-to-lot consistency.

In vitro experiments have shown that the yeast-derived HBsAg in Engerix®-B contains all the epitopes (antigenic sites) that have been found in the HBsAg in plasma-derived vaccines.

In vivo, the human antibody response to Engerix®-B is similar to the response to plasma-derived vaccines with respect to epitope specificity and avidity. There is no significant modification of the anti-yeast antibody titre after vaccination with Engerix®-B.

These studies indicate that Engerix®-B is immunologically similar to the plasma-derived vaccines and provides similar protective efficacy.

Since no substances of human origin are used in the production of Engerix®-B, the potential for transmission of diseases associated with blood and blood products is eliminated. Potency, safety and sterility are verified for each lot.

The vaccine is a slightly opaque, white, sterile suspension. A slow settling of the white aluminum hydroxide may occur during storage leaving a clear colourless supernatant liquid. Each 1 mL dose of vaccine contains 20 µg of hepatitis B surface antigen adsorbed onto 0.5 mg of Al⁺⁺⁺ as aluminum hydroxide with 0.005% thimerosal as preservative.

In comparative studies commercial plasma-derived vaccines and Engerix®-B exhibited comparable potency in mice and guinea pigs, and comparable protective efficacy in chimpanzees.

Engerix®-B is also highly immunogenic in rabbits, goats and monkeys.

Indications and clinical use Engerix®-B [hepatitis B vaccine (recombinant)] is indicated for active immunization against hepatitis B virus infection. The vaccine will not protect against infection caused by hepatitis A and non-A non-B hepatitis viruses. As hepatitis D (caused by the delta agent) does not occur in the absence of hepatitis B infection or carrier state, it can be expected that hepatitis D will also be prevented by vaccination with Engerix®-B.

The vaccine can be administered at any age from birth onwards. It may be used to start a primary course of vaccination or as a booster dose. It may also be used to complete a primary course of vaccination started with plasma-derived or yeast-derived vaccines or as a booster dose in subjects who have previously received a primary course of vaccination with plasma-derived or yeast-derived vaccines.

In areas of low prevalence of hepatitis B, vaccination is strongly recommended in subjects who are at increased risk of infection. These include the following groups:

Health care personnel: physicians and surgeons; oral surgeons and dentists; nurses, dental nurses, dental hygienists, podiatrists; IV teams and operating room personnel; paramedical personnel in close contact with patients; staff in hemodialysis, nephrology, hepatology, hematology and oncology units; laboratory personnel handling blood and other clinical specimens; blood bank and plasma fractionation workers; pathologists and morgue attendants; cleaning staff who handle waste in hospitals; emergency and first aid workers; ambulance staff; dental, medical and nursing students.

Patients: patients receiving frequent blood transfusions or clotting factor concentrates, such as those in oncology units and those with thalassemia, sickle-cell anemia, cirrhosis, hemophilia, etc. patients on hemodialysis.

Personnel and residents of institutions: persons with frequent and/or close contacts with high-risk groups; prisoners and prison staff; residents and staff of institutions for the mentally retarded (those who are in contact with aggressive biting residents being at highest risk).

Persons at increased risk due to their sexual practices: sexually promiscuous persons; persons who repeatedly contract sexually transmitted disease; homosexually active males; prostitutes.

Persons who use injectable drugs illicitly

Travellers to areas of high endemicity and their close contacts

Household contacts of any of the above groups and of patients with acute or chronic hepatitis B infection

Infants born of HBsAg-positive mothers

Others: police; fire fighters; armed forces personnel; morticians and embalmers; those who through their work or personal lifestyle may be exposed to the hepatitis B virus.

In areas of both low and high prevalence vaccination should be offered to all young children and neonates at risk as well as to adult high risk groups.

Contraindications Hypersensitivity to any component of the vaccine. As for any vaccine, Engerix®-B [hepatitis B vaccine (recombinant)] should not be administered to subjects with severe febrile infections. Vaccination of a subject with febrile symptoms, with a respiratory infection, or with a contagious or any other disease should be postponed until after recovery. However, the presence of a trivial infection does not contraindicate vaccination.

Warnings Because hepatitis B has a long incubation period it is possible that there may be latent infection at the time of vaccination. Engerix®-B [hepatitis B vaccine (recombinant)] may not prevent hepatitis B in such cases.

Patients who develop symptoms suggestive of hypersensitivity after an injection should not receive further injections of Engerix®-B (see CONTRAINDICATIONS).

Engerix®-B should not be administered in the gluteal region or intradermally since these routes of administration may not result in an optimum immune response. Intradermal administration may also result in severe local reactions. The vaccine must never be administered intravenously.

In dialysis patients and subjects who have an impairment of the immune system, adequate antibody concentrations may not be maintained after a primary vaccination course of 40 µg doses. Such patients may require repeated administrations of the vaccine.

Precautions A new sterile syringe and a new sterile needle should always be used so as to prevent the transmission from one subject to another of infectious agents, such as the hepatitis B virus, non-A, non-B hepatitis virus or the human immunodeficiency virus (HIV).

The effect of the antigen on fetal development is unknown and therefore vaccination of pregnant women cannot be recommended. However, vaccination of a pregnant woman may be considered in order to prevent hepatitis B in high-risk situations.

As with all biologicals, a solution of 1 in 1,000 adrenaline should always be readily available for immediate use in case of a rare anaphylactic reaction.

Adverse Reactions Engerix®-B [hepatitis B vaccine (recombinant)] is very well tolerated. In 47 studies, 5466 subjects received from one to four doses of Engerix®-B for a total of over 15,000 doses. No serious or severe reactions attributable to the vaccine were reported. The incidence of local and systemic reactions reported in each study was similar to those seen with plasma-derived vaccine, and tended to decrease after successive doses of vaccine.

The most commonly reported local reactions were soreness, erythema and swelling at the injection site as seen with all adsorbed vaccines. These reactions were mild and usually subsided within two days after vaccination. Systemic complaints such as fever, headache, nausea, dizziness and fatigue have occurred rarely; a causal relationship with the vaccine has not been established.

Dosage Adults, children and infants: The same 1 mL dose of 20 µg of Engerix®-B [hepatitis B vaccine (recombinant)] is recommended for subjects of all ages.

Hemodialysis and immunocompromised patients: A 2 mL dose of Engerix®-B (40 µg) is recommended.

For individuals in whom a primary vaccination schedule has been initiated with a plasma-derived vaccine, dosing may be continued with Engerix®-B.

Engerix®-B can effectively boost anti-HBs responses initially elicited by either plasma-derived or yeast-derived vaccines.

Vaccination Schedules

	3 DOSE SCHEDULE	4 DOSE SCHEDULE	SCHEDULE FOR HEMODIALYSIS PATIENTS
20 µg PER DOSE*	Timing of doses	Timing of doses	Timing of doses
1st DOSE	ZERO time	ZERO time	ZERO time
2nd DOSE	1 MONTH after 1st dose	1 MONTH after 1st dose	1 MONTH after 1st dose
3rd DOSE	6 MONTHS after 1st dose	2 MONTHS after 1st dose	2 MONTHS after 1st dose
4th DOSE	—	12 MONTHS after 1st dose	6 MONTHS after 1st dose

*N.B.: 40 µg for hemodialysis and immunocompromised patients.

Engerix®-B may be administered according to the 3 dose schedule historically used with other hepatitis B vaccines.

For more rapid protection a 4 dose schedule results in the development of protective anti-HBs titres by 3 months. The fourth dose (at 12 months) is required to maintain prolonged protective anti-HBs titres.

For hemodialysis patients, a 4 dose schedule at 0, 1, 2 and 6 months is recommended.

Booster Doses: Experience with plasma-derived vaccines has shown that anti-HBs titres gradually decline over time. It is expected that this will also be true for Engerix®-B. Engerix®-B can effectively boost anti-HBs responses initially elicited by either plasma-derived or yeast-derived vaccines.

A booster dose (20 µg) should be considered 5 years after the last dose.

For hemodialysis and immunocompromised patients, a booster (40 µg) may be required sooner. Regular serological monitoring is recommended to ensure that antibodies are and remain at protective levels.

Administration Check the expiry date of the vaccine carefully. Do not use vaccine beyond its expiry date.

Shake the vaccine well before use so as to resuspend the sediment of fine white particles of adjuvant (aluminum hydroxide) which settles during storage.

Clean the skin at the site of injection with a suitable antiseptic and dry with a piece of dry sterile cotton. Disinfect the rubber stopper with antiseptic; wipe it dry with a dry, sterile cotton swab; then using a sterile needle, withdraw 1 mL from the vial into a sterile syringe.

Engerix®-B should be injected intramuscularly. In adults the injection should be given in the deltoid region. In neonates and infants it may be preferable to inject Engerix®-B in the anterolateral thigh because of the small size of their deltoid muscle. In special circumstances the vaccine may be administered subcutaneously in patients with severe bleeding tendencies (e.g., hemophiliacs).

ENGRIX®-B MUST NOT BE GIVEN INTRAVENOUSLY OR INTRADERMALLY Engerix®-B may be administered simultaneously with hepatitis B immunoglobulin (HBIG); however it must be administered at a separate injection site.

Availability 1 mL single dose vial containing 20 µg of hepatitis B surface antigen per vial in a carton with Prescribing Information leaflet.

Storage and Stability: The vaccine should be shipped under refrigeration and stored at 2°C to 8°C (35.6°F to 46.4°F). DO NOT FREEZE. Vaccine which has been frozen is no longer potent and should be discarded.

When stored at 2°C to 8°C (35.6°F to 46.4°F), the shelf life of Engerix®-B is two years from the date of manufacture. The expiry date is shown on the label.



Offices and Practices

YUKON—Whitehorse: Dental practice for sale. Affordable. Details on request. Contact: Dr. F. Almstrom (403) 667-4486 Office or (403) 667-6564 Home.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—North Vancouver: A very special practice — MINE! Solo, family-oriented, well-established, casual requires an energetic, outgoing operator. Flexible arrangements. Reply to CDA Box 2428.

BRITISH COLUMBIA—Vancouver Lower Mainland: Busy mall location, 6 operatories, 2 fully-equipped, in 1200 sq ft office. New leasehold and equipment, low rent and long-term lease. Phone (604) 525-1454 evenings.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

BRITISH COLUMBIA—Victoria: Established 10-year-old family practice for sale. Four fully-equipped operatories. High gross, high net, 500 plus new patients annually. Exceptional opportunity. Reply to: P.O. Box 7056, Depot 4, Victoria, B.C. V9B 4Z2.

ALBERTA—Edmonton: Well-established, high-gross practice. Seven operatories fully-equipped with pan, lab and

staff for 3 or more dentists. Recently remodelled with excellent lease. Reply (403) 434-8350 (broker).

ALBERTA—North-Central: Well-established general family practice for sale. Two of four operatories fully-equipped, plus an O.P. 5 Pan x-ray. Good patient flow, excellent lease, high annual gross. Terms negotiable. Business: (403) 837-8335. Home: (403) 837-2898.

ALBERTA—Red Deer: Very busy, established, three operator general practice for sale. Reasonably priced. Owner retiring. For information in confidence phone (403) 347-3123 (bus) or (403) 343-7130 (res).

ALBERTA—Spruce Grove: Practice For Sale. Satellite city of Edmonton. Busy, ten-year-old, high-volume, preventive-oriented family practice in growing residential area. Eighty new patients per month, 5000 accounts. 4000 sq ft facility is three years old. Siemens OP10 with cephalometric attachment and most of the other equipment is three years old or less. Nine fully-equipped operatories. One associate and full-time hygienist in practice now. Owner wishing to retire but will stay as an associate for a smooth transition if new owner desires. Direct inquiries to Dr. James McNab, 115 Main St, Spruce Grove, Alberta T7X 3B5 (403) 962-3414.

SOUTHWEST SASKATCHEWAN: Practice for Sale: "I QUIT!" — My practice has a gross you would not believe. Do you want to take my place? (306) 463-2600 or (306) 463-4403 Call today.

ONTARIO—Amherstburg: Busy general practice for sale. Established 14 years. Excellent gross and net income. 95 percent insurance. 3 hygienists. Cost-sharing modern, pleasant facilities with two other dentists. Excellent location. On the lake 25 minutes from Windsor/Detroit. Great opportunity. Call (519) 736-4672.

ONTARIO—Bracebridge: For Sale. General Practice — To an experienced, conscientious person. Over 1000 sq ft, three modern operatories and lab on ground floor. Owner wishes to work part-time as an associate or retire. Congenial

and competent staff. Contact: Dr. Morley Crockford at (705) 645-4300 or Box 1919, Bracebridge, Ont. P0B 1C0.

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

QUEBEC—Montreal: Two operator dental office available. This office is modern, fully-equipped and in excellent condition. Located in the Cote des Neiges area next to subway line. Ideal location with high patient flow. Very negotiable financial arrangements can be made. For information, telephone (514) 737-2251.

NOVA SCOTIA: Exceptional Opportunity. Very busy, modern practice available in beautiful town on South Shore of Nova Scotia. Well-established, family-oriented, excellent income. For details contact: 6452 Vienna St, Halifax, NS B3L 1S8 (902) 454-9027 or 455-3748.

NOVA SCOTIA—Halifax: Established downtown general practice for sale, located in Purdy's Wharf. Sale includes share of modern equipment, sundries, and term lease of office space. Practice includes a large recall clientele (mostly adult). Suitable for an experienced operator or two graduates. Apply to Box CDA 2327 or in confidence to Dr. Stewart Keddy, 43 Westridge Dr., Halifax B3M 3K3.

NEWFOUNDLAND—Clareville: Established family practice in rapidly growing east coast town. 900 sq ft in medical building. Two operatories with space for 2 more. Good potential for further growth. Phone (709) 466-7001 (B) or (709) 466-7009 (H).

NEW ZEALAND: Practice for Sale. Situated mid North Island in beautiful Waikato dairy farming country. One hour drive to surf beaches and also the Lake district where some of the finest trout fishing in the world is found. An hour and a half to skiing and the same distance to Auckland, New Zealand's largest city. Busy, growing practice that has a high gross. Price \$90,000. Enquiries: P.J. Childs, 17 Arapuni St., Putaruru. Phone 8727 or 27.371 after hours.

NEW ZEALAND: Opportunity to purchase practice before entry qualifications change next year. Associate practice in desirable town which is the centre of horse breeding. Quality dentistry and unlimited potential. Also a 1/2 share or the whole of a part-time practice 40 miles away can be bought. It is well set up but needs more development time and the price is very reasonable. Forty-year-old owner of these practices wishes to spend more time in outdoor pursuits. Reply to Dr. B. McElwee, 24 Dick St, Cambridge, New Zealand.

Associateships Available

BRITISH COLUMBIA: Part-time leading to full-time associate required for busy general family practice in beautiful West Vancouver. Position available for enthusiastic and caring dentist. Call evenings (604) 922-3722.

BRITISH COLUMBIA—Victoria: IF YOU WANT TO BE BUSY, WE NEED YOU! Well-established family practice in mall setting. Excellent staff, patient load and growth potential. Associate to take over existing practice and share in our 100+ new patients/month. Contact Dr. Donald Bays (604) 381-6433 or 595-8050.

ALBERTA—Central: Associate required for very busy, well-established mall practice located in Red Deer. Full-time position with option to purchase. Position to start on or before November 1, 1988. Please contact Candace (403) 347-8008.

ALBERTA—Fort McMurray: Well-established family practice requires associate. Good communication skills required. Please reply to Dr. Rosanne Zysko, 108 Wolverine Dr, Fort McMurray, Alberta T9H 4Y7. (403) 790-1733.

SASKATCHEWAN—Regina: Associate required for established family practice. Generous percentage. Call or write Dr. R. Katz, 351 Albert St, Regina, Sask. S4R 2N6. Tel: (306) 924-1494.

ONTARIO—Brampton: Unique opportunity for full-time associateship leading to partnership. Newly-opened dental centre in a fast growing area of north Brampton. Phone (416) 840-0000. Ask for Marlene.

ONTARIO—Lindsay: Associate wanted for busy, established family practice with a view to buy in. Reply to W.J. Percival, 310 Kent St West, Lindsay, Ont K9V 4T7.

ONTARIO—London: Full-time Associate required for very busy, established general practice. Partnership opportunity available. Call Barbara at (519) 455-2551.

ONTARIO—Parkhill: ASSOCIATE REQUIRED. Preventive-oriented group practice environment requires an additional dentist. Future partnership possible. Located in southwest London, Ontario. One year old plaza. Excellent opportunity. Contact Dr. J. Rick Merritt at (519) 473-0220.

ONTARIO—St. Catharines: Associate required for modern store-front location. Seeking dynamic, team-oriented individual to join established, highly preventative, general practice with motivated, congenial staff and buy-in potential. In scenic Niagara, minutes from excellent golf and sailing facilities, 20 minutes to US border and 1 1/2 hours from excellent skiing. Reply in writing to CDA Box 2427.

U.S.A.—New York: WANTED. Pedodontic Associate for exclusive pedodontic group with elite clientele. Modern comprehensive pedodontic practice in upstate New York. Please reply in confidence to CDA Box 2424.

Opportunities Available

BRITISH COLUMBIA—Kamloops: Established practice offers opportunity for full-time, long-term position with buy-in potential. All phases of dentistry. Volitional family practice. Call (604) 579-5788 (evenings).

BRITISH COLUMBIA—Kootenays: High daily minimum gross in busy solo family practice established 23 years. Excellent staff and recall system, providing all phases of dentistry. Large patient base and steady growth of new patients assures continued success. This city is growing with steady employment and 94 percent dental insurance. I will associate for an introductory period. Purchase for 50 percent of annual gross includes all equipment, supplies, etc. Suitable for experienced dentist or two graduates. (604) 442-5837.

BRITISH COLUMBIA—Prince George: We are inviting enthusiastic, quality-conscious dentists (experienced dentists preferred, new graduate considered) to consider a unique opportunity in a non-traditional environment. We are a large progressive dental group located in Prince George, B.C.'s 2nd largest city. Our schedule is designed to attract local and out of province candidates. We welcome your telephone (collect) inquiries to: Lakewood Dental Group, c/o Elaine David, Mon-Fri (daytime) (604) 562-5551, Evenings or weekends (604) 562-1927.

ALBERTA: Golden Opportunity. No investment. Take over a good practice. What an offer! I started up a satellite practice two hours away where my brother lives. I am so busy I must devote to one. I can work with someone as they take over and work into practice. Hopefully the right person will take over and purchase one practice if desired. Call (403) 553-3359 Monday-Wednesday or (403) 529-2626 Thursday-Saturday.

ALBERTA: Partner/associate position available due to medical reasons. Town of 5000, two hours east of Edmonton. General practice with emphasis on removable prosthetics. Experience preferred. Call collect (403) 842-4242 days 8:00-4:00 Hauck, Hauck, Tovell Dental Surgeons.

ONTARIO: Oral & Maxillofacial surgeon associate required for full-scope practice. Knowledge of TMJ, implants, orthognathics and out-patient anesthesia necessary. Reply to CDA Box 2425.

ONTARIO: Tenure track position available in Division of Operative Dentistry University of Western Ontario July 1, 1989. Rank and duration of initial appointment dependent on qualifications and experience. D.D.S. (or equivalent), graduate training in restorative dentistry and research & teaching experience required. Duties include teaching and research. Inquiries and applications including curriculum vitae and names of three referees should be sent to Dean, Faculty of Dentistry, The University of Western Ontario, London, Ontario N6A 5C1. In accordance with Canadian immigration requirements, advertisement directed to Canadian citizens and permanent residents of Canada. Position subject to budget approval.

ONTARIO: DENTISTE DEMANDÉ — Région de l'Outaouais pour travail à pourcentage temps plein — possibilité d'association. Clinique bien équipée et moderne. Pour information communiquer avec: Dr. Alain Thivierge, tel: (819) 595-3368 ou (613) 733-9731.

ONTARIO—North Toronto: Position available immediately for a Paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and

Wanted: All dentists with offices and practices for sale. Advertise in the classified section of the Journal of the Canadian Dental Association for best results (see classified advertising form on this page).

adolescents. Associateship with future prospects for partnership or cost sharing arrangement. Please reply to CDA Box 2426.

Opportunities Wanted

ALBERTA—Edmonton Area: Experienced, conscientious dentist considerate of quality and the patient. I am interested in a part-time associateship or in purchasing or buying into a busy, stable practice where the senior dentist wishes to continue working on a part-time basis. Reply to CDA Box 2396.

QUÉBEC—Montréal: Young, enterprising dentist looking to associate with well-established Montréal or surrounding area practice. Eventual partnership or purchase ideal. Call: (514) 933-4642.

Equipment

ONTARIO—Ottawa: One Phillips 810 x-ray processor in excellent condition. \$1900. Contact: Dr. Lionel Metrick (613) 236-5621.

Advertisers' Index

Alberta Children's Hospital	770
John O. Butler Company	IBC
CDSPI	734, 739, 742, 747, 765, 750
Hoechst Canada, Inc.	727, 735, 770
F.W. Horner, Inc.	740, 741, 770
The Institute for Practice Development	758
Interplak	724
Kodak Canada, Inc.	736
MDICL, Inc.	718
Myo-tronics, Inc.	717
Premier Dental (Canada) Inc.	730
Procter and Gamble, Inc.	IFC
Quintessence Publishing Co., Inc.	766
Smith, Kline & French Canada Ltd.	748, 749, 771
Tandy Computer Centres	760
Tridont Health Care, Inc.	759
Warner Lambert Canada, Inc.	OBC

Doctor . . . a moment of your time!

Reach every dentist and dental student in Canada

Over 14,000 dentists and 1,600 dental students read the Journal of the Canadian Dental Association every month. The Journal has a section exclusively for you — the Marketplace. Whether you are buying a practice, selling a practice, or looking for an associate, we are here to give you the best exposure possible.

Dentists who do not get the response they anticipated after running their paid advertisement twice will receive one placement of their ad at no charge.

CLASSIFIED ADVERTISEMENTS

The classified advertising department of the Journal of the Canadian Dental Association is published as a service to the dental profession. Rates are minimal. Therefore, even on display classified advertisements, no agency commission is payable.

CLASSIFIED ADVERTISING RATES

50 words or less, per ad (minimum) \$30.00 plus 50¢ for each additional word. Box number \$5 per insertion. All ads must be prepaid. (Cheque or money order). **NO AGENCY COMMISSION PAYABLE.** Closing date is first day of month preceding month of issue. No cancellation or copy changes after closing date. Ads not accepted over telephone. The Journal reserves the right to reject or edit advertisements that do not conform to Journal requirements.

DISPLAY CLASSIFIED RATES

Half page and quarter page ads only. Commercial advertisers do not qualify. One time rate only: half page vertical or horizontal \$500.00, quarter page \$315.00. Payable in Canadian funds.

Replies to CDA box numbers should indicate box number on envelope. Names and addresses of box number advertisers will not be revealed.

The Journal of the Canadian Dental Association neither investigates the offers made in these advertisements nor assumes any responsibility for them.

**Write: Journal, Classified Advertising Dept. Attention: Jennifer McClinton
1815 Alta Vista Dr., Ottawa, Ontario, K1G 3Y6**

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID

AMOUNT OF CHEQUE ENCLOSED: _____

One call does it all!

Butler



**Your single source for the
world's most complete line of professional
dental health care products.**

Nobody offers more alternatives for home-care dental maintenance than Butler. From everyone's favorite, the G-U-M® 411 toothbrush, to the newest Junior Critters™, the Ultra Soft toothbrush and double-headed Proxabrush® handle, only Butler has everything your patients need. We respond to your needs, Doctor. And, we offer factory-direct prices. Write for complete price list and catalog.

Butler

John O. Butler Company

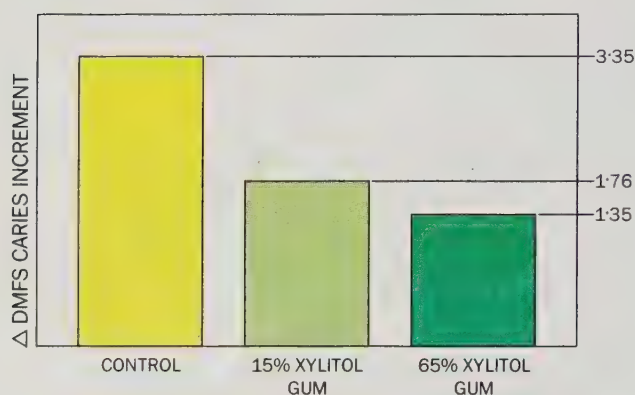
515 Governors Road
Guelph, Ontario N1K 1C7
Phone: In Guelph 837-2500; in Ontario and
Quebec (except area 418) 1 800 265-7177;
in all other areas 1 800 265-8353

Butler G-U-M® Toothbrushes • Butler Critter Children's Toothbrushes • Special Use Toothbrushes • Proxabrush Interdental System • Floss • Floss Threaders • Protect Fluorides • Protect Prophy Paste & Trays • Interdental Stimulators • Wood Interdental Cleaners • Red Cote Plaque Discissants • Home-Care Kits • Protect Desensitizing Gel Dentifrice • Teaching Aids • And many other Home-Care Aids

Now, new studies prove that Trident with **xylitol** helps fight cavities.

Xylitol is a naturally-occurring sweetening agent found in plants, vegetables, even the human body. For years, scientists have suspected that this natural substance may play an active role in cavity prevention. Now, new clinical studies prove it.

Independent trials¹ conducted by international



This one-year study conducted by the Montreal General Hospital and the University of Montreal, Department of Preventive and Community Dentistry, on 433 eight and nine year old Montreal children clearly demonstrates a protective effect of xylitol-containing chewing gum in a school caries preventive programme. (The control group had a normal diet and preventive programme.)

institutions such as the World Health Organization have substantiated existing evidence, gathered through concentrated research over the last ten years, that indicates xylitol cannot be metabolized by decay-causing microflora in the oral cavity.

Trident Sugarless Gum, which contains xylitol², is now being recognized as more than just a harmless treat. When used at least twice a day, it has been proven to be an important adjunct to the regular oral hygiene programme of brushing, flossing, rinsing, and having fluoride treatments plus biannual dental check-ups.

Now, you can recommend Trident as an effective way to reduce the threat of acidogenic action after carbohydrate snacking, especially for young, caries-prone patients. And, the great new taste of Trident means that patient compliance is assured.

Trident. More than just a treat.



MORE THAN JUST A TREAT

¹ Reg. T.M. Warner-Lambert Company, Adams Brands Mfg. Auth. User.

¹The Finnish Xylitol Study, 1982-1985. The French Polynesian WHO Study, 1979. The WHO Hungarian Study, 1981-1984. The Montreal Chewing Gum Study, 1987. Case studies available upon request.

²Trident Peppermint, Cinnamon, Freshmint, and Fruit flavours only.

DENT

November
novembre
1988
Vol. 54
No. 11

Canadian
Dental
Association

L'Association
Dentaire
Canadienne

B

If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER A
L'EXPÉDITEUR
Port payé

Q1
UNIVERSITY OF TORONTO (1)
LIBRARY SERIALS DEPT
TORONTO, ONT

M5S 1A5

1A-8812

▲ Professional
Concern

▲ La profession
s'inquiète





INTRODUCING A SUPERIOR CREST. Improved tartar fight. Easier prophies.

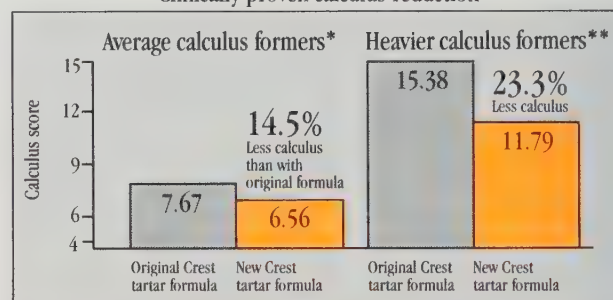
Crest, the innovator of tartar fighting toothpaste, has created a dynamic new tool against supragingival calculus. New Crest now contains 5% soluble pyrophosphate, a 51% active ingredient increase. Not only is unsightly calculus build-up inhibited, but smaller deposits are easier to remove. You spend less time scaling — and your patient is more comfortable.

Clinically proven to provide significantly greater calculus reduction.

Double-blind clinical results under ad lib conditions prove that New Crest fights calculus better than ever before. Across a broad range of calculus formers, New Crest tartar fighter provided 14.5% more calculus reduction than the original Crest tartar formula. Among heavy calculus formers, New Crest provided 23.3% greater calculus reduction.

References: 1. Lu, K.H. et al., J Indiana Dent Assoc, 1988, March-April. 2. Lu, K.H. et al., J Dent Child, 1985, Nov.-Dec., pp. 449-51.

Clinically proven calculus reduction



*Whole mouth V-M Scores ≥ 7 .

Chart adapted from Lu et al.¹

**Whole mouth V-M Scores ≥ 12 .

Mean scores significantly different from one another at $\alpha = 0.05$.

The anticaries protection for which Crest has always been famous.

Crest's great new tartar fighting formula contains the same proven anticaries system as regular Crest. In fact, Crest is the only tartar fighting toothpaste with clinically proven anticaries protection. This was confirmed in a massive clinical study among nearly 1500 school children.²

Recommend Crest's new Tartar Fighter



CREST: Tested. Proven. Trusted.



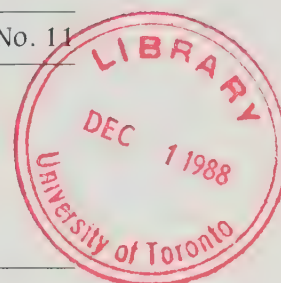
"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

Canadian Dental Association
l'Association Dentaire Canadienne

November 1988

Vol. 54 No. 11



Features

Dentistry Behind the Walls 813 Dr. Gary MacDonald

Practice Profiling 817 Dr. Brian Rocky

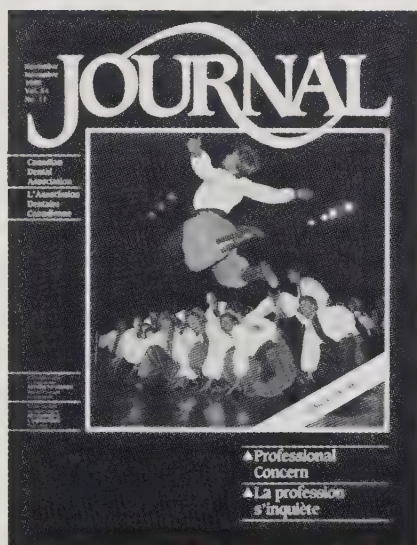
Why Isn't Hepatitis B vaccine being Used? 821 Dr. John Hardie

AIDS risk to dental personnel: 825 a realistic approach
Dr. Tom D. Daley

Acquired Immuno-deficiency Syndrome (AIDS) 831 in an elderly female psychiatric patient
Dr. Gerard Lapeer

Actinomycotic Osteomyelitis 837 Dr. A. Ruprecht

Caractéristiques épidémiologiques 843 de la carie dentaire chez les écoliers québécois de 7-8, 11-12 ans, en 1983-84
Dr. Martin Payette et al



An outstanding and colorful feature at the CDA Convention in Edmonton (August 21-24) was the performance by the Shumka Ukrainian Dancers during the Registration Party. Our cover depicts one of the incredible leaps during the performance.

Departments

- 781 Editorial
- 782 President's Column
Professionalism
- 783 News Update
Edmonton '88
Capitation - An Interview
- 785 CDA RSP
- 796 Briefly
- 797 DAP Update
- 806 Resource Centre/Library
- 807 Dentistry and the Law
- 809 Books Reviews
- 853 Announcements
- 854 Obituaries
- 857 Marketplace
- 860 Advertiser's Index
- 862 Back Talk

PUBLICATIONS COMMITTEE

Chairman
Dr. John Hardie

Members
Dr. P. C. Desautels
Dr. H. Jack Stockton
A. Jardine Neilson

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Associate Editor
Clarence Metcalfe

Scientific Editor (English)
Dr. Robert Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

Advertising Representative
Ms. Marg Churchill
Suite 105, 4953 Dundas St. W.
Toronto, Ont. M9A 1B6

Telephone (416) 239-1233 FAX (416) 239-8220

Classified Advertising and Circulation Coordinator
Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics
Dr. Aaron Fenton

Oral Pathology
Dr. James Main

Orthodontics
Dr. Alan Lowe

Public Health
Dr. Donald Lewis

Endodontics
Dr. Barry Korzen

Paedodontics
Dr. Howard Stein

Oral Surgery
Dr. Huan Pham

Forensic Dentistry
Dr. Robert Dorion

Periodontics
Dr. Harvey Freedman

Nutrition
Nina Burgess

Canadian Dental Hygienists Association
Carol Worobey

Canadian Dental Assistants Association
Elaine Wesley

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada — \$42; United States — \$44; all other — \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the journal.

ISSN0709 8936

Canadian Dental Association

EXECUTIVE COUNCIL

President
Dr. J.W. Niedermayer
Regina, Saskatchewan

Past-President
Dr. R.J. Markey
Vancouver, B.C.

President-Elect
Dr. K.L. Roach
Pembroke, Ontario

Dr. D.E. MacFarlane
Vancouver, B.C.

Dr. Ray Wenn
Charlottetown, P.E.I.

Dr. L.S. Allen
Winnipeg, Man.

Dr. G. Dubé
Lachute, Quebec

Dr. B. Sigfstead
Edmonton, Alta.

Dr. Bernard Dolansky
Ottawa, Ontario

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini
Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws
Dr. G.H. Peacock
Saskatoon, Saskatchewan

Dental Materials & Devices
Dr. R.Y. Barolet
Montréal, Québec

Education and Accreditation
Dr. A. Schwartz
Winnipeg, Manitoba

Ethics
Dr. R. Thordarson
Vancouver, B.C.

Hospital and Institutional Services
Dr. E.L. MacInnis
Halifax, N.S.

Information Services
Dr. P. O'Brien
St. John's, Nfld.

Insurance and Investment
Dr. J. Durran
Hamilton, Ontario

Nominations
Dr. J.R. Robertson
Summerside, P.E.I.

Student Affairs
Miss M. Shildkraut
Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Council Secretary
Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation
Brian Henderson
Education, Accreditation, Professional Councils

Coordinator of Accreditation
Lorraine Emmerson
Surveys, graduate, undergraduate,
auxiliary programs, hospital services

Associate Director, Professional Councils
Janice Forsythe
Third Party Dental Plans, Health Care,
Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration
Joel R. Neal
Administration, finances, information systems,
membership

Business Manager
Shelagh Dunlop

Accountant
Joan Wilkes

Membership Secretary
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck
Dental Aptitude Testing Program, Journal,
Dental Awareness Program, Student Affairs,
Resource Centre, MEDLINE, Conferences,
Conventions, media relations,
public information.

Information officer
Kimberley Allen-McGill

DAT Coordinator
Win Mobley

Librarian/MEDLINE
Martha Vaughan

Editor
Dr. P. Ralph Crawford

We can't give up trying

A very sad set of circumstances occurred recently in a Canadian community. The first sad aspect was the sudden death of a dentist — announced in the usual fashion. The second was the actual circumstances surrounding his death.

The dentist had just completed his day's work, had hung up his handpiece, and left the office "as is". The dentist died very suddenly shortly after, never to return to the office.

The office that remained should be noted. The handpiece was belt-driven and contained a steel bur (there wasn't a carbide to be found in the office!) There was a compressor but it wasn't connected. Air was obtained from a rubber bulb chip blower! Records were kept on 3 × 5 file cards with incomplete X-rays paper-clipped to the corner of the cards. Recently used forceps rested in a 1950s type boiling water sterilizer. It was obvious that very little, if anything, had been done to keep this practice current, since graduation many years before.

The unfortunate dentist left this world in "good standing" with the licensing authority. No file of complaints from patients or other dentists had accumulated. No record shows that the dentist was ever a detriment to the profession.

Should we be concerned? Every dentist who graduated pre-high speed knows that excellent restorations may be obtained with steel burs at 8,000 rpm. It is common knowledge that patient records on small file cards served many dental offices — but long before the litigious society in which we now live. One-operator offices without the assistance of auxiliary services are not necessarily bad. Are the techniques of the 50s adequate today?

The question then arises: Should this dentist have been allowed to practice as he did? Can the creeping insidiousness of Capitation failures as reported from the United States be stopped at the Canadian border? (See interview about Capitation in the News section of this issue.) Can even the small patches of "Crabgrass in the Lawn of Dentistry" (as editorialized by Dr. Jim Shosenberg in the May issue of the ODA Journal) be decreased or eliminated?

We just don't know, but we can't give up trying.

Organized dentistry, both associations and licensing bodies, are certainly concerned about quality assurance and **have not** given up trying. We have witnessed a marked increase in the number of editorials and commentaries in various dental publications in recent months. However, none offer any "quick fix" or miracle cure, mainly because none exist.

Dr. Marc Boucher, President of the Order of Dentists of Quebec, reports in the March issue of the *Journal dentaire du Québec* that in his Province, where mandatory dental office visitations are carried out by a Professional Inspection Committee, only a bare minimum of locations are actually investigated. Dr. Boucher states, "... it is quite obvious that some dentists will only be seen once in 20 years". He suggests a possible alternative — a type of self-assessment questionnaire based on articles published in the *Journal dentaire du Québec*. The Order would thus have an opportunity to monitor the actual knowledge level of every dentist.

The College of Dental Surgeons of British Columbia, is now using computerized procedure records to profile members' activities. It would appear that this system has some merit in locating aberrant dentists, in noting abuses, or detecting failure. The method is achieving some success, but obviously not all dentists are in favor of electronic scrutiny. Dr. Jack Gryfe in a "Viewpoint" article — "You're on Candid Computer", appearing in the June/July ODA News, perhaps speaks for a number of dentists when he states, "for the moment, I cannot condone ODA participation in what I consider to be an invasion of my privacy".

Quality Assurance has been studied at length by the American Dental Association and is perceived as fundamental in maintaining high professionalism. The Canadian Dental Association made a foray into this area in 1982 when it mounted a "Dental Quality Assurance and Peer Review Conference". Little developed from this endeavor. Perhaps it is appropriate, considering concerns depicted in recent editorial columns, that CDA again take a leadership role in what is obviously a "national" responsibility.

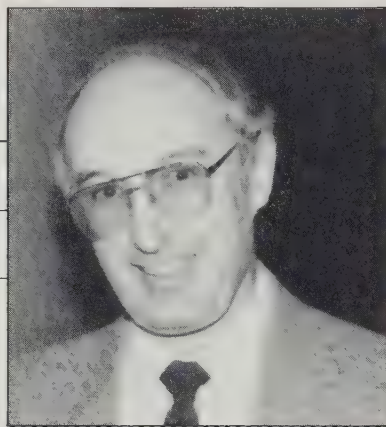
Whether it be the sad circumstances of an individual, a trend in changing ethical values, or a problem that has always existed in human relationships, the direction is obvious.

It is the profession's responsibility; whether a dentist in solitary practice, a licensing body or a national association, to fulfil its mandate as stated in the CDA Code of Ethics, Article Number 1. . . .

"The dentist is a member of a health profession and has a duty of service to the public. This responsibility should include the delivery of quality care, competently and timely, within the bounds of the clinical circumstances presented by the patient. Quality of care should be a primary consideration of the dental practitioner."

P. Ralph Crawford, DMD,
Editor, *Journal of the Canadian Dental Association*

President's Column



Professionalism

Professionalism is an issue more important to dentistry today than ever before.

It could be categorized as a truly subjective term and might be defined several ways, carrying with them different shades of meaning for each of us.

One definition of the term is — that quality of conduct which accompanies the use of superior knowledge, skill and judgement, towards the benefit of another person or to society, prior to any consideration of self-interest by the professional person or professional organization.

We should like to think that dental schools would provide students with the opportunity to develop this superior knowledge, skill and judgement as it relates to the profession of dentistry. We would also hope that as young adults, the strong moral and ethical convictions that enable them to apply these skills in dentistry will be developed to the benefit of the patient, without clinical judgement being tempered by self-interest.

These lofty goals or aspirations are not new to the profession, but they have stood the test of time since the inception of modern dentistry.

The dental profession in the 1980s offers demands and challenges that did not exist a decade or more ago. Many changes are taking place today in the practice of dentistry. Tradition no longer holds sway. The manner in which we as dentists cope with these changes will determine the future of the profession. It is for this reason that professionalism is more important today than ever before.

To quote Dr. James Saddoris, the immediate Past-President of the American Dental Association at a luncheon address to members of the Canadian Dental Association — “professionalism holds the key to the future. We have a responsibility to our country and to the world. Let not mediocrity substitute for quality”.

As professionals we must work together for the benefit of all people. If we work together with an honesty of purpose, sincerity in the performance of labor, and an understanding of the mutual relations of person to person, the profession will win high honors in the future, and individual dentists in this country will have earned their professional stature in the eyes of the public.

*Jack W. Niedermayer, BA, DDS,
President of the Canadian Dental Association.*

News Update

EDMONTON '88

CDA Convention attendance reached record levels

PHOTOS BY C. METCALFE



Shaena Palmer, nine, of Edmonton, national winner in the National Dental Health Month Poster Contest, is congratulated by CDA President Dr. Ron Markey. She is standing beside her winning handiwork.



The 1988 Grieve Memorial Lecturer, Dr. Ronald H. Roth, of San Mateo, California, receives an official acknowledgement of the occasion from CDA President Dr. Ron Markey. Dr. Roth spoke on "The Specifics of Orthodontic Treatment Goals".



CBC-TV news personality Knowlton Nash drew a full house as presenter of the CFDE-sponsored Murray McDonald Memorial Lecture. CDA President Dr. Ron Markey expressed an official thank you to Mr. Nash.

Edmonton '88 entered the annals of the Canadian Dental Association as one of the most successful conventions in its long history.

"It exceeded all of our expectations" CDA President Dr. Ron Markey commented, as he congratulated Dr. Herb Link and his Convention Committee and thanked the Alberta Dental Association for a "superb job, done with a real sense of class".

In terms of attendance, there were two remarkable aspects. A record number of entire families was on hand, and also, an unusually high attendance of entire dental teams from clinics and offices across Canada.

Attendance figures

Total attendance was approximately 3,600. Of that total, 1,218 were dentists, 346 spouses, 206 children, 555 exhibitors, 458 office staff, about 300 dental hygienists and 325 dental assistants, approximately 150 students, 33 technicians and 20 guests.

Capacity audiences

There were clear indications even before the official opening of the Convention of the success and interest in the various aspects of the program.

Registration and participation in the Pre-Convention courses being offered on Saturday, August 20 and Sunday, August 21, resulted in full houses.

On Saturday, Dr. James Cottone of San Antonio, Texas, presented on the subject of Infection Control and Dentistry: "The Challenge of Hepatitis and AIDS".

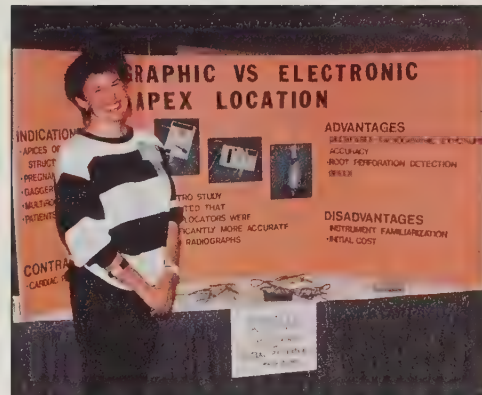
Sunday, Dr. William Becker of Tucson, Arizona, spoke on Changing Concepts in Periodontal Therapy: "Scaling and Root Planing Isn't Enough".

Colorful opening

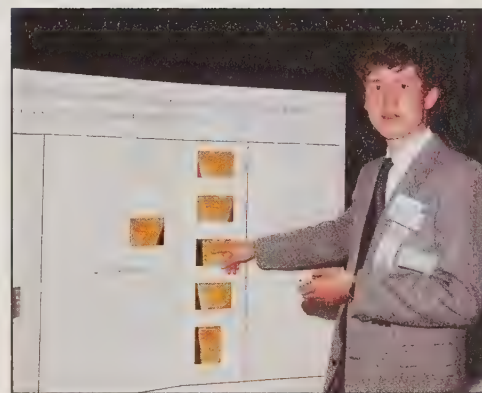
On Sunday evening, the Registration Roundup party marked the opening of Convention activities. The highlight was a spectacular and colorful performance by Edmonton's internationally renowned Shumka Ukrainian Dancers for an appreciative dental audience of more than 1,300.

'Early Bird' draw winner

The draw for two tickets to any destination to which Air Canada flies in Europe



Mrs. Bev Neufeld of the University of Saskatchewan earned first place award for her clinic in the CDA/Dentsply Student Clinician Program at the 1988 CDA Convention in Edmonton.



Eggert Boehlau of the University of Toronto earned second prize for his clinic in the 1988 CDA/Dentsply Student Clinician Program held in conjunction with the 1988 CDA Convention.



Klondike Kate lived up to her colorful reputation in Edmonton at the CDA Convention's Western Night. She soon won over her big audience, including usually sedate members such as Ottawa endodontist, CDA Executive Council member and Past ODA President Dr. Bernard Dolansky.

and North America, an incentive for early Convention registration, was made on Sunday evening.

The "Early Bird" winner was Col. Morley N. Deyette, Director, Dental Health Services, National Defence Headquarters, Ottawa.

Monday highlights

The full impact of the high level of attendance and interest became obvious on Monday, August 22, when large numbers attended the *K.J. Paynter Memorial Symposium* sponsored by the Royal College of Dentists of Canada, on the subject of Craniomandibular Function and Dysfunction, to hear 13 speakers during the day-long session: the *1988 Grieve Memorial Lecture*, presented by Dr. Ronald H. Roth of San Mateo, California, on the subject "The Specifics of Orthodontic Treatment Goals"; and upwards of 600 heard CBC-TV News personality *Knowlton Nash* speak of his career and television news policies, in the CFDE-sponsored Murray McDonald Memorial Lecture.

CDA/ADA luncheon

An international atmosphere prevailed at the CDA/ADA luncheon because of the presence and remarks of Dr. James Sadoris, President of the American Dental Association and Sir Paul Bramley, President of the British Dental Association.

Dr. Sadoris told his large audience that "we are members of a North American community. We must reach out and communicate with our colleagues all over the world. We must consider the need and suffering in Third World countries." He stressed the need for high ideals in dentistry. "This is an era of fast sell and the fast buck. Mediocrity is being substituted for quality. This contrasts sharply with the ideals of dentistry in the United States and Canada. We have a responsibility to bring this to all the world. We can be a global force for excellence — for humanity!"

Sir Paul Bramley saw this contact as a "beginning of a resumption of serious contact between North America and Europe. We have a lot in common." He pinpointed a major problem in European dental circles — that of "bringing dental education into harmony among the members of the European Economic Community."

He congratulated the Canadian Dental Association on its "achievements and splendid convocation."



Las Vegas entertainer and singer Bobby Curtola encouraged a genuine party atmosphere with his perpetual motion performance at the Convention's Western Night.

National poster winner

The luncheon was a memorable occasion for nine-year-old *Shaena Palmer*, national winner of the 1988 National Dental Health Month Poster Contest. The talented and winsome youngster, a Grade V pupil in Edmonton's Westbrook Elementary School, received a cheque and congratulations from CDA President Dr. Ron Markey.

Shaena is a major achiever in the NDHM Poster Contest. She was the Alberta provincial winner both in 1987 and 1988.



Guest speaker at the CDA/ADA Luncheon at the Edmonton Convention Centre was Commander Randy Cunningham whose exploits as a US Navy fighter pilot in Vietnam were the basis of a book and a Hollywood movie "Top Gun".

Guest speaker

U.S. Navy air ace *Commander Randy Cunningham*, a much-decorated veteran of the Vietnam conflict, was the guest speaker at the luncheon. Cdr. Cunningham, whose exploits became the basis of a book and then a Hollywood movie — "Top Gun" — spoke on team work, in the family and professionally.

People, such as those in the dental team, should be praised for work well done, he said. "That's called leadership." The reward will be "100 times more service."

Cdr. Cunningham is now the dean of a California flight school.

Law, esthetics and survival

Morning and afternoon presentations Monday, also attracting high levels of participation and interest, were: "Esthetics" by Dr. Frank Spear of Tacoma, Washington; "Legal Perspectives in the Practice of Dentistry" by Mr. Raymond C. Purdy, member of a prominent Edmonton law firm, and a "Personnel Survival Seminar" (solving personnel management problems), conducted by Jennifer de St. Georges of Monte Sereno, California.

Tuesday sessions

Tuesday's sessions included an all-day Implant Symposium, chaired by Dr. B.K. Arora. Presenters included Drs. Gerald Baker, William Abbott, Aaron Fenton and James Plecash.

Dr. Edward H. Sauer of Houston, Texas, presented on the subject a Capitation in morning and afternoon sessions.

Mr. Robert W. Sydenham of Edmonton, gave two presentations on the subject of "Lower Back Pain and the Dental Profession".

Dr. Bernard Dolansky, an Ottawa endodontist, gave two presentations on that subject — a distillation of what works in the day-to-day practice of conservative root canal therapy.

Mrs. Naomi Rhode, of Phoenix, Arizona, conducted two sessions on Practice Management — staff training, motivation and human self-esteem — helping a practitioner or auxiliary to discover his/her full potential for peak performance — attracting standing room only audiences.

CDA/Dentsply student clinics

The 1988 program for Canadian students featured nine table clinics. The students presented their clinics for the benefit of

those attending the CDA Convention, on Tuesday afternoon, August 23, at the Edmonton Convention Centre.

CDSPI presentations

The Canadian Dental Services Plans Inc (CDSPI) maintained a high profile at Edmonton '88, giving detailed presentations morning and afternoon (August 23) on the services provided by CDSPI, specifically geared to the needs of dentists. Sessions concentrated on insurance planning, retirement services and dental office management systems.

The CDSPI also maintained the Convention Message Centre in the Convention Centre.

CDSPI Convention Draw winner

The CDSPI has announced that out of 339 entries in their CDA Convention Draw, the winner was *Colonel H. W. Brogan* of Dartmouth, Nova Scotia. The prize was a set of 1988 Winter Olympic commemorative coins.

Hepatitis B vaccination clinic

Substantial numbers of dentists and other dental personnel took advantage of the Hepatitis B Vaccination Clinic, provided by the CDA in cooperation with Smith, Kline and French Canada Ltd.

More than 250 persons availed themselves of the opportunity to receive the protection.

The clinic operated all day Tuesday and until noon Wednesday, in the Edmonton Convention Centre.

Authentic 'Western Night'

On Tuesday evening, the Alberta hosts created a true Western environment, complete with 10-gallon (litres?) hats, Western beef and Western entertainers. And for those not prone to lower back pain, there was a mechanical bull to ride.

Klondike Kate, a polished, professional and colorful reminder of the pioneering days in the West, soon gained the complete cooperation of her audience.

Surprisingly lacking in bashfulness, several dentists (including members of CDA's Executive Council) joined *Klondike Kate* and her leggy dancers on stage, but were not spectacular in their attempts to do high kicks.

Tireless Bobby Curtola

Las Vegas entertainer and singer *Bobby Curtola* provided familiar and popular music for dancing and just listening.

The Canadian-born singer amazed his audience with his sheer energy, in a non-stop set that lasted more than an hour. And then there were encores.

Even on the final day of the Convention, interest was not lacking.

Dr. Bryce Larke, Professor of Pediatrics at the University of Alberta, spoke to a large audience on "AIDS, Viral Hepatitis and Dentistry". Dr. Larke, who has a keen interest in viral infections and their control by immunization, has just recently returned from a sabbatical spent at the Pasteur Institute in Paris, France, where he worked with the group that first described the two viruses which lead to AIDS.

Success to the end

The obvious success of the Convention lingered until the final curtain. More than 800 took advantage of the Farewell Brunch, and appeared loathe to leave the Convention Centre.

Large exhibit area

Probably the most pleased people at the Convention were the exhibitors.

Exhibits filled the two large exhibit halls to capacity, with a wide variety of dental materials and available services.

Booth attendants reported a steady stream of very interested visitors, and one beaming dental manufacturer's representative reported at closing time Wednesday "we don't have to take anything back. We sold everything we had."

Chairman pays tribute

Dr. Herb Link told the Journal he considered the "tremendous success of the Convention as a family event was most gratifying". He believed the spouses' program was "the best ever" and paid tribute to the co-chairpersons, Gail Horne and Corinne Mather. Dr. Link also credited the great success of the Social program to Dr. Rick and Louise Klippert and Dr. Paul Schuller. △

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	September 30, 1988	September 9, 1988
Bond & Mortgage Fund	62.34994	61.75160
Common Stock Fund	13.76220	13.78719
Money Market Fund	41.70563	41.59011
Balanced Fund	25.38787	25.28801

Interest rates:

G.I.C. Fund

Term

Term	*Interest rates as at	
	September 30, 1988	September 9, 1988
1 yr	10.60%	10.10%
2 yr	10.70%	10.40%
3 yr	10.85%	10.50%
4 yr	10.85%	10.65%
5 yr	10.85%	10.85%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

September 30, 1988	September 9, 1988
\$97,630,692	\$96,193,539

For further information:



CDA RSP

Write:

CDSPI

Retirement Services Dept.

Suite 600

2 Lansing Square

Willowdale, Ontario

M2J 4Z3

or phone, toll-free:

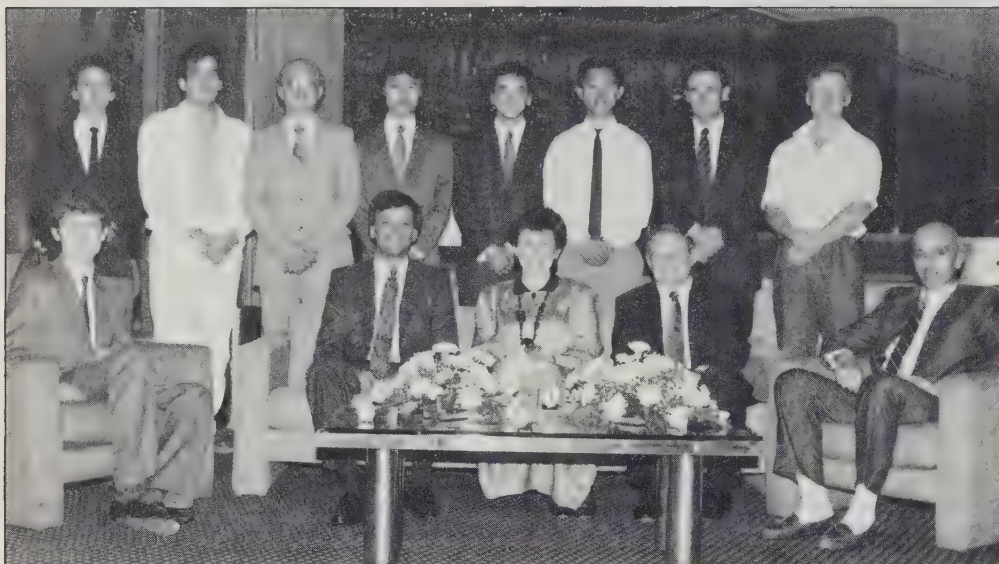
Western and Atlantic Canada
and Ontario Area Code 807

only 1-800-268-5418

Quebec and Ontario, (except Area
Code 807) 1-800-268-3411

Metro Toronto Area 497-7117

Nine CDA/Dentsply student clinicians honored in Edmonton



Participants and sponsors of the 1988 CDA/Dentsply Student Clinician Program gathered for this photograph following the Dentsply Dinner honoring the students. Seated (l. to r.) are Eggert Boehlau, University of Toronto; Dr. Ron J. Markey, President of the Canadian Dental Association; Bev Neufeld, University of Saskatchewan; Mr. Burton C. Borgelt, President and Chief Executive Officer of Dentsply International; and Sul Lalani, University of Manitoba. Standing (l. to r.) are René Voyer, Laval University; Claude Laflamme, University of Montreal; Frank P. Szojka, University of Alberta; Eun Choi, McGill University; David Chin, Jr., University of Manitoba; Sandy Ko, University of British Columbia; Jeremiah J. Collins, University of Western Ontario; and Chris Keim, University of British Columbia.

The Eighteenth CDA/Dentsply Student Clinician Program was held in conjunction with the 1988 CDA Convention in Edmonton, Alberta. The Program was again sponsored by Dentsply Canada, Ltd., through a special grant made to the Canadian Fund for Dental Education.

This year's program for Canadian students featured nine student table clinics. Students received an expense-paid trip to Edmonton to present their table clinic after placing first in their school's individual student clinician program.

Mr. Eggert Boehlau of the University of Toronto claimed a Second Place Award for his clinic titled "The effect of different matrix systems on the proximal marginal micro-leakage and microhardness of Class 2 posterior composite resins: An in vitro study." Mrs. Bev Neufeld of the University of Saskatchewan earned the First Place Award for her clinic on "Radiographic vs. electronic apex location." Mr. Boehlau received a cash award of \$150 and Mrs. Neufeld has been invited to attend the 129th Annual Session of the American Dental Association at Washington, DC during October 8-12 as an honored guest of Dentsply International.

Other students participating, their schools and clinic titles were: Eun Choi, McGill University — "Racial variation of dental parameters and degree of sexual dimorphism"; Jeremiah J. Collins, University of Western Ontario — "Restoration of a removable partial denture abutment using a custom matrix"; Sandy Ko and co-clinician Chris Keim, University of British Columbia — "How to malpractice-proof your practice"; Claude Laflamme, University of Montreal — "Les couronnes de céramique coulée"; Sul Lalani and co-clinician David Chin, Jr., University of Manitoba — "Mouthguards: And you thought coaches knew best"; Frank P. Szojka, University of Alberta — "A computer voice recognition system for dental examinations"; and René Voyer, Laval University — "The effectiveness of Spiramycin in the treatment of chronic adult periodontitis."

A reception and dinner honoring student clinicians was hosted on August 22 by Mr. Burton C. Borgelt, President and Chief Executive Officer of Dentsply International, representing the sponsors. The dinner was attended by approximately one hundred persons including student clinicians, deans, faculty program advisors and special guests representing the dental profession and dental education.

The student clinicians presented their clinics for the benefit of those attending the Convention on Tuesday afternoon, August 23 at the Edmonton Convention Centre. △

Dalhousie U research team receives major MRC program grant

A group of six researchers in the Dalhousie University Faculty of Dentistry, together with two colleagues in the College of Pharmacy and Department of Chemistry, have obtained a three-year Medical Research Council program grant valued at \$712,591.

The title of the research program is: "Synthesis, Evaluation, Application and Biological Testing of Biomaterials".

The research team has already gained an international reputation in the area of Biomaterials Research. Team members involved are: Choong Foong, Bruce Graham, Barbara Harsanyi, Robin Howell, Derek Jones, Jan Kwak (Chemistry), Michael Mezei (Pharmacy) and Elliott Sutow.

Dr. Derek Jones, who is coordinator of the program grant and principal investigator on two of the projects, said that this grant is by far the largest ever obtained within Dalhousie's Faculty of Dentistry.

The specific research projects involve an increased understanding of the fundamental properties of a range of biomaterials as well as the synthesis and development of improved biomaterials. Synthetic materials are increasingly being used in biomedical applications as substitutes for natural tissues. The development of new improved polymer, glass and ceramic materials by wet chemical synthesis will be used to custom build biomaterials with specific chemical and physical properties to function in the body. The program deals with the interaction between body and synthetic materials which may be beneficial to health.

The program also aims to develop materials which will be capable of acting as slow release agents for therapeutic drugs to treat various infections of the mouth and vagina. Controlled drug release from biomaterials will become increasingly important in the future in order to treat an aging population. The systems also have potential for providing health care treatment for populations in remote areas of Canada. △

Executive Director's Report on the 1988 Annual Meeting of the CDA Board of Governors Highlights and Principal Decisions

1988 Budget — Fee Increase

The Board approved a 1989 budget with revenues of \$4,228,344, expenditures \$4,220,978 and a surplus of \$7,366. In order to allow funding of priority programs and projects annual membership dues will be increased 8.6 per cent or \$25.00 per active member.

The priority projects presented to the Board were the result of the Executive Budget Planning Session held last June. . .

- Participation in the Dialogue in Dentistry program;
- An expanded government relations program;
- A Preferred Provider Program;
- A Journal Readership Survey;
- DAT Workshop to upgrade CDA participation and,
- Additional staff resources in the Education and Accreditation, and Communication Departments.

Structure-Management Committee-Compensation

At the 1988 interim Meeting of Governors in March, approval was given to a revised structure of the Management Committee. Effective at the 1991 Interim Meeting, Management will consist of a Vice-President, President-Elect and President. The Vice-President will be elected and added to the Management Committee at the 1989 Interim Meeting. An additional member will be appointed to the Executive Council when the first Vice-President is elected — bringing the number of Executive Council membership to ten through to the 1991 Board meeting.

Governors approved the following compensation policy:

- The Vice-President elected at the 1989 Interim Board will not be paid an honorarium until assuming the office of President-Elect following the 1989 Annual Meeting: per diem at the Executive Council level will be paid during that period;
- Following the elections at 1989 Meeting of the Board the Vice-President and Past-President will receive 50 per



CDA President Jack Niedermayer poses with his family following his installation in Edmonton. The Niedermayer family members are (from the left): Jill, Dr. Niedermayer, Mrs. (Nicki) Niedermayer, Jan, Jackie and Judy.

cent of the normal honorarium, and remain in effect until the 1990 Annual Meeting.

- As of the 1990 Annual Meeting, the Past-President will receive no honorarium: the Vice-President will receive honorarium equal to that of the President-Elect.

To offset the change-over financial implications during 1989, Management Committee meetings will be reduced to a duration of one-day. The additional cost during 1990 is estimated at \$15,000.

Space Requirement Analysis

On the recommendation of Management, Executive Council has directed the Executive Director and the Director of Administration investigate future space requirements. Options considered are:

1. Remain at the present headquarters, 1815 Alta Vista Drive.
2. Move, selling the building, and build elsewhere;

3. Move, selling the building, and buy elsewhere;

4. Move, selling the building, and lease elsewhere

CDA has been informed by the City of Ottawa that a relaxation of zoning regulations will now allow the CDA building to house "professional offices, excluding a medical or dental facility".

Building Contingency Reserve Fund

Revised terms were approved: in a year of surplus greater than \$20,000, \$20,000 plus a portion of the remaining surplus could be transferred to the Fund. In years not producing a surplus the transfer of \$20,000 to the Fund would be optional.

CDA Expense Policy Review

A major change to the policy reflects CDA decision to cover "full fare economy" airfare, only where seat sales were not available, or where their utilization will

cause serious conflict with scheduling of official business of the Association.

CDA Mortgage Loan

The mortgage loan of the CDA building has been paid out to a zero balance. The mortgage has not been discharged; it will serve as collateral for a \$400,000 line of bank credit.

Management of the Life Plan Surplus

The Board unanimously approved a recommendation of the Executive Council that, of the 5.1 million dollars in the Life Plan Surplus account as at December 31, 1987, a minimum of \$900,000 be committed to the rate stabilization reserve for the life plan, and 2 million dollars of the Life Plan Surplus be distributed commencing in 1989, over a three year period, in the form of premium credits to all participants in the Life Plan. The remainder of the surplus will be retained.

Tendering Process — National/Provincial Benefit Plans

As part of the continuing review and monitoring of the benefits portion of CDIP, the CDSPI Board, at its December 4, 1987 meeting agreed that 1988 would be an appropriate year to test the competitiveness of rates, levels of service and the attitude of insurers in the marketplace. Responses from competing carriers were to be reviewed at a joint meeting of CDA

Executive Council and the CDSPI Board on August 21 in Edmonton. Discussion of the tender is ongoing.

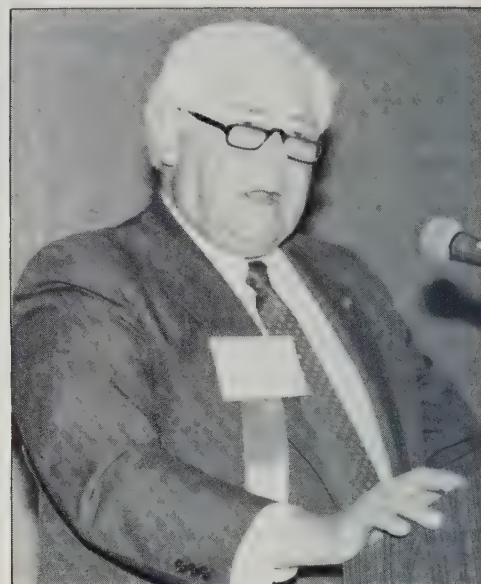
Professional Resource Utilization — Data Collection

As previously reported, the Dean's Committee has expressed concern with epidemiological data utilized by the CDA Professional Resource Utilization Committee (PRUC), in formulating recommendations for dental school enrolment reductions.

Dr. Gordon Thompson, Dean, University of Alberta, is developing an epidemiological study which would provide information essential to the strategic planning process. A funding proposal has been submitted to government.

A project proposal for a Profile Survey of the Canadian Dental Practice submitted by Dr. Kenneth Zakariasen, Dean, and Mr. Douglas Schaller, Director, Dental Management Information, Dalhousie University, was reviewed by Executive Council. The proposal developed in consultation with Dr. Larry Meskin, a U.S. leader in practice profile research, focuses on the collection of data regarding current and future trends in the demand for dental service in dental practices across Canada.

Dr. Don MacFarlane, newly appointed Chairman of PRUC, will develop a required strategic plan for presentation to the Executive Council at the Fall Planning Session.



The president of the American Dental Association, Dr. James Sadoris, addresses the audience at the CDA/ADA luncheon.

Supervision Requirements for Dental Hygienists

Governors approved a policy statement on the supervision arrangements that may be employed at the discretion of the dentist, including "immediate supervision" and "direction". The approved policy statement will be published in a future edition of the CDA Journal.

Professional Liability Insurance — RCDS

Representative of CDA, RCDS and CDSPI reached an agreement to investigate the feasibility of a national approach to the field of professional liability insurance.

CDA Conventions

Dr. Michel Jahjah, General Chairman of CDA Conventions, presented the planning picture for future CDA Conventions. The concept of the "dental team" attending CDA conventions was seen as a key to growth. The Executive Council agreed that any profits from the 1988 and 1989 conventions be utilized for "seed" money to finance the 1990 and future conventions.

Preliminary figures of the very successful Edmonton Convention indicate that 1,150 dentists and 555 exhibitors attended. Congratulations and thanks were extended to Dr. Herb Link, Chairman of the Edmonton Convention and to all his hard working committee members.

It is indeed on a wave of optimism that the CDA heads towards its 1989 convention in Vancouver August 27-30, 1989.



CDA President Dr. Jack Niedermayer, (right) presents the Past President's Pin to Dr. Ron Markey at the Installation Dinner.



Another notable guest of the CDA who spoke at the luncheon and enjoyed subsequent 1988 Convention events was Sir Paul Bramley, President of the British Dental Association.

CDA Awards

At a Special Award's Luncheon on Friday August 19th Dr. Nicholas A. Mancini of Hamilton was presented an Honorary Membership in the CDA. It is the Association's highest award of distinction. Drs. John Christie of Halifax, Edward Allison of Calgary and Yosh Kamachi of North Bay received the CDA's Award of Merit. Full details of these Awards was reported in the September Journal.

Government Relations

The Committee gave strong support of tobacco legislation — Bills C-51 and 204 which have been granted Senate approval. Discussions continue with Health & Welfare officials for a cooperative program in the distribution of AIDS-related information. Governors approved the Government Relations Committee continued activities in promoting CIDA/CDA projects outside Canada.

CDA Position on Denture Mechanics

In response to current pressure being exerted on various provincial governments to allow denture mechanics to construct partial dentures, the Committee on Health Care developed a comprehensive position outlining the principles of patient care and the relationship between dentist and the denture mechanic.

The statement will be published in a future edition of the CDA Journal.

Principles Governing General Anaesthesia, and Neurolept-Analgesia/Heavy Sedation in the Dental Office

The approved position defines and outlines the principles that must be followed in administering anaesthesia. The principles will appear in an upcoming edition of the Journal.

Infection Control — Ad Hoc Committee

The Board approved two concepts as cornerstones of CDA's Infection Control Policies.

First, the dentist bears the responsibility to examine the patient and determine treatment needs regardless of infection status. Treatment must not be refused on ground of infection status alone. Treatment in most cases should be rendered in the dental office.

Second, in accepting the first concept it follows that the dental office cannot attain operating room sterility. All dental health care workers must appreciate there is a risk — albeit a small one.

The Board further encourages provincial dental associations to develop continuing education courses on prevention of disease transmission, including moral, legal and ethical aspects.

The Ad Hoc Committee also reviewed use of prophylactic antibiotics for ARC and AIDS patients. Until more scientifically-documented information is available, the logical approach to antibiotic prophylaxis would appear to be:

- a) *If the patient is HIV antibody positive but otherwise asymptomatic, and the dentist's judgement is that based upon the medical history (exclusive of the HIV status) and/or clinical findings, an antibiotic is justified, prescribed according to established principles;*
- b) *If the patient is judged to carry ARC or AIDS, and the dentist's judgement is that, based upon medical history (exclusive of the ARC or AIDS status) and/or clinical findings, an antibiotic is justified, the patient's attending physician must be consulted as to whether or not an antibiotic should be prescribed.*

Considering the above, the Board will request the ACFD, the Faculties of Dentistry and other appropriate organizations, to explore the establishment of a research project that would investigate interactions of drugs commonly prescribed by dentists to control HIV infections. The CDA Specialties Committee will also be asked to comment on this issue.

A document entitled, "Implementation of the Recommendations for Infection Control Procedures", is being developed as a joint venture with Health & Welfare Canada.

Life and Retired Membership

The criteria for Life Membership, although reviewed in 1985, continues to pose problems. . .

1. There are growing numbers of Life members, currently 896, and this number is expected to grow rapidly as the large size post-war classes reach retirement age.
2. There is concern of the appropriateness of granting Life Membership status to dentists still actively practicing and thereby earning normal incomes.
3. The system of awarding Life Membership may discriminate against some dentists.

The Board approved a revised definition for Life membership requiring a dentist have a minimum of forty years membership and no longer be licensed to practice in Canada, or be fully retired from dental practice, teaching or administration.

A new class of membership — Retired Member — has been approved. This will be any dentist who is no longer licensed to practice in Canada and is fully retired from dental practice, teaching or administration.

Membership Services

Executive Council approved an Affinity Credit Card Program for CDA members. A vehicle leasing program has been given preliminary approval, providing it is revenue generating for CDA and that the Association will incur no risk or financial responsibility.

Potential for Antagonism between Fluoride and Pyrophosphates

The Committee for Consumer Products Recognition is concerned with the lack of clinical research on potential antagonism between fluoride and pyrophosphates in mouthrinses. Until there is appropriate evidence in support of an anti-caries effect the Committee has recommended postponement of consideration of fluoride-containing tartar-control oral rinses for the anti-caries claim.

Dental Specialties Committee — Inaugural Report

The Committee expressed unanimous opposition to the formation of an umbrella specialty in Orofacial Diagnostic Sciences.

The Governors endorsed a recommendation of the Committee that the Canadian Association of Oral and Maxillofacial Surgeons and the Canadian Academy of Periodontology suggest that their members work exclusively with licensed dentists for the prosthetic rehabilitation of implant patients. The Board directed the Committee on Health Care develop a CDA policy statement in this regard.

The Board, acting on recommendations from both the Specialty Committee and the Council on Education's Task Force on Future Planning, approved an Ad Hoc Committee be charged with reviewing current arrangements for provincial recognition of dental specialties (including the roles of RCDC and NDEB).

Tax Reform

Three meetings have taken place with representatives of the Department of Finance regarding the White Paper on Sales Tax Reform proposal to place a Federal Sales Tax on Dental Services.

CDA's request is for dental services to be given similar status as medical services. Presently, Finance is proposing that medical services be exempt if they are paid for by public funding. The White Paper proposes that dental services paid for by insurance or private funds be taxed at approximately ten per cent.

Canadian Customs (Harmonized Systems Classification)

The classification for dental goods under the Harmonized System provides new Tariff Numbers which are essential for Canadian dentists desiring to utilize the new Customs Commercial Postal System when importing dental goods to Canada.

CDA Taxation Seminars

In May, 110 dentists and spouses attended a Tax Seminar in Vancouver. Audience participation and subsequent laudatory letters indicated a high degree of interest. Further Seminars are scheduled for Montreal on October 21st and Moncton January 20th, 1989.

Dialogue in Dentistry

At the 1988 Interim Meeting, Governors supported a national Dialogue in Den-

tistry program with start-up costs coming from surplus funds of the National Public Information Campaign. This initial funding was subject to approval of the provincial contributors, the majority of whom have now indicated that the surplus funds due them be returned. A budget to authorize the 1989 Dialogue program was approved.

National Conference: "Dental Plans: Our Shared Concerns"

Budget approval was given for a national conference to be held in Toronto on September 30–October 1st that will provide an opportunity for plan administrators, dental consultants, benefit consultants and dentists to discuss problems in the delivery of dental care.

Electronic Data Transfer

The Board endorsed a recommendation to utilize the services of a consultant to develop a plan of action for the development of a National Electronic Data Transfer Program.

Seal of Recognition Program — Dental Materials and Devices

Governors authorized funds be advanced for initial legal consultation for a program of Recognition of Dental Materials and Devices. The program is designed to be self-supporting and revenue generating. Administered by the Council of Dental Materials and Devices, the program will be required to meet the following criteria:

1. *the product must comply with the Food and Drug Laws;*
2. *the manufacturer must submit data to the Committee proving the product complies with ISO, CSE, IEC or standards;*
3. *the manufacturer must regularly provide evidence of its continuing quality assurance procedures.*

Publications Committee

The Board reviewed a report on future Journal articles as presented by the Committee. A review of scientific articles published over the last five years indicates that approximately 40 per cent of the articles were written by members of Canada's academic community. This ensured the Journal's scientific reputation and sets it apart from other Canadian dental magazines.

Dental Hygiene Competency Profile

Governors approved a competency profile for dental hygiene, which has the support

of the Canadian Dental Hygienists' Association and the CDA Council on Education and Accreditation. The document states clearly that competencies listed are performed within specific requirements for supervision, as identified in each province. Previous concerns related to the level of examination performed by dental hygienists, have been dealt with by inclusion of specific definitions.

Report on the Task Force on Future Planning

Following an extensive consultation process the Task Force presented its final report to the Governors. There were 22 recommendations under the following headings. . .

- *Goals or Purpose of the Council on Education and Accreditation*
- *Accreditation*
- *Basic Structure Required*
- *Basic Processes Required*
- *Basic Resources Required*
- *Summary of Recommendations and Conclusion*

The Board approved restructuring of the Council of Education and Accreditation. The current Council will be disbanded and TWO separate councils, a Council on Education, and a Council on Accreditation will be established. The establishment of a separate council on accreditation will ensure that the processes of accreditation and licensure visibly demonstrate that the interests of the public are protected.

The Task Force affirmed the concern that quality assurance processes are essential in relation to the preparation of dental hygienists and Level 2 (intra-oral) dental assistants as these auxiliaries deliver services under dental supervision, directly to the public.

Governors approved a recommendation that the Accreditation process no longer apply to educational programs preparing Level 1 (extra-oral) assistants, provided a well-supported national certification examination process can be developed. Representatives from CDA, NDEB, CDHA and CDAA were invited to discuss a means to establish a Council on Dental Hygiene/Dental Assisting Certification.

Responsibilities for accreditation currently carried out by the Committee on Hospital and Institutional Services will be transferred to the new Council on Accreditation. The Committee on Roles and Responsibilities has been directed to examine the feasibility of merging the

Committee on Hospital and Institutional Services and the Committee on Health Care.

In establishing the new Council on Accreditation, Governors endorsed the goal that the Council operate on a cost-recovery basis, balancing expenditures against the revenues generated from levies, survey fees and grants.

Dental Awareness Program

Governors approved the continuation of the Dental Awareness Program for the years 1989 and 1990 with budgets for each year set at \$235,000. Over \$2 million has been received in corporate sponsorship since January 1987.

CDA has submitted a grant proposal to the National Health Research and Development Program (NHRDP) for a longitudinal study on the impact of the communication strategy for the Dental Awareness Program.

CDA RSP — Change in Fund Names

To address confusion which arises when the value of the current Fixed Income Fund fluctuates, the Fixed Income Fund has been renamed the Bond and Mortgage Fund, and the Guaranteed Fund has been renamed the Guaranteed Income Fund. This will allow participants to make more meaningful comparison with chartered banks and trust companies, which use similar terminology.

Annual Elections

Dr. Kevin Roach of Pembroke was acclaimed President-Elect; he will also become Chairman of the Management Committee. Dr. Jack Niedermayer of Regina was installed as CDA's 69th President, and will assume the role of Chairman of Executive Council.

Elected as a new member to Executive Council, Dr. Bernard Dolansky of Ottawa will represent Ontario; Dr. Don MacFarlane of Vancouver was elected for a further term representing British Columbia; and Dr. Ray Wenn of Charlottetown, who completed the unexpired term of Dr. John Christie, was elected to his first term representing the Atlantic provinces.

Members of CDA are invited to contact the Association if further information is required on any of the above items. Members are reminded that proceedings of the Interim and Annual Meetings of the CDA Board of Governors are published annually as the CDA Transactions. Copies are available in the Fall of each year and are free of charge to members on request. △

AIDS patient wins case against hospital dental department

In what is believed to be the first case in Canada where a patient with AIDS has launched a discrimination charge against a dental facility for an alleged refusal of certain dental treatment, that patient has won the case.

The case was launched through the Ontario Human Rights Commission against a Toronto hospital's dental department.

The patient died prior to the conclusion of the case. The executor of his estate then requested the Commission to continue with the case.

The male AIDS victim had complained to the Commission that the hospital's dental clinic had told him that patients with AIDS would not be given permanent fillings or have their teeth cleaned and polished.

The patient claimed to have been told that these dental procedures required high speed instruments that would create an aerosol of blood and saliva believed to pose a risk to the dentist and to other patients.

College not involved

An official of the Royal College of Dental Surgeons of Ontario said the College was in no way involved in this case. "The action was taken through the Ontario Human Rights Act", he said.

However, he said this is another reason why the College believes it must have upgraded infection control guidelines and also word the moral and ethical considerations "more strongly" than in the past.

The Royal College Council will meet this month to adopt these stronger guidelines, the official reported.

In the preparation of the proposed guidelines, CDA's infection control and ethical guidelines were influential and input was invited from resource people including Dr. John Hardie, a member of Health and Welfare Canada's National Advisory Committee on AIDS and from Dr. James Main, Professor of Pathology, Faculty of Dentistry, the University of Toronto.

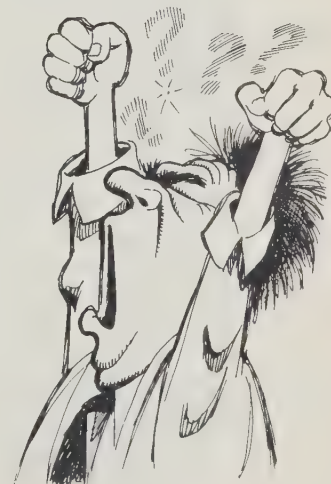
The guidelines will not be "regulations," the spokesman pointed out. But they could be influential in a civil suit hearing. If a practitioner has not followed guidelines and in testimony cannot offer a plausible reason why he has departed from them, this can be highly influential in reaching a final decision in a case. △

Did you know?

Yawn Remains a Mystery

The yawn has long thought to be body's response to a lack of oxygen or a buildup of carbon dioxide, but this may not be true. Robert R. Provine and his colleagues at the University of Maryland in Catonsville found that exposing people to different mixtures of oxygen and carbon dioxide did not correlate with their yawns. They also discovered that yawning and breathing use different routes of inhalation and exhalation. Specifically, it is nearly impossible to yawn with the mouth taped shut, even if nasal breathing is unrestricted. Clenching the teeth also inhibits a satisfactory yawn, which seems to require a freely moving jaw. Despite these insights into what a yawn is not, the scientist can only conclude that a yawn's true function "remains mysterious."

Science News, Vol. 132, No. 23



Dental officers graduate at CFB Borden ceremony

The graduation ceremonies of the Dental Officer Training Plan Phase III Course was held at Canadian Forces Base Borden, Ontario in August. Brigadier-General J.F. Begin, Director General of Dental Services served as Reviewing Officer for the parade.

The host of the event was Colonel E.D. Cragg, Commandant of the Canadian Forces Dental Services School (CFDSS). Involved as Directing Staff for the course were Major T.J. Pielak, as Course Director, Major C.J. Cormier, as Assistant Course Director, Chief Warrant Officer R.A. Gayler as Field Exercise Coordinator, Sergeant M.S.C. Isabelle, as Course NCM and Captain A. Lundstrom as Administration Officer.

DOTP Program

The Dental Officer Training Program (DOTP) is a program whereby the Canadian Forces subsidizes a dental student's tuition, instruments, supplies, textbooks, and includes a monthly salary. During the summers between academic years, enrolled students undergo phase training which prepares them for future careers as Dental Officers.

- Phase I — Basic Officer Training Course
- Phase II — Students work in larger clinics across Canada to become familiar with military dental clinics and Canadian Forces Base environment.
- Phase III A — As Phase II, but emphasis on clinical experience
- Phase III B — Conducted at CFDSS, CFB Borden, Ontario to instruct candidates on administrative and management procedures applicable to the Canadian Forces Dental Services. Included is a week-long field exercise where the students are taught the skills required to provide dental treatment in a mobile field dental clinic. Following graduation from dental school, the students will be employed in a CF dental clinic for a three or four-year period of obligatory service as Dental Officers.



Brigadier-General J.F. Begin, Director General Dental Services, with guests (left to right): Major (Retired) G.C. Hunt, who is President of the Royal Canadian Dental Corps Association; Dr. Ron J. Markey, (then President of the CDA), Brigadier-General Begin; Colonel E.D. Cragg, Commandant of the Canadian Forces Dental Services School; Dr. William R. Thompson, Colonel Commandant, Canadian Forces Dental Services and Mr. Jardine Neilson, Executive Director of the Canadian Dental Association.

Graduates

Students are recognized for their achievements at a graduation parade. Brigadier-General J.F. Begin was Reviewing Officer and presented graduation certificates to the following students:

Captain J.J. Collins	University of Western Ontario	2Lt H.R. Herchen	University of Alberta
2Lt D.N. Albert	Dalhousie	2Lt S.C. Hill	University of British Columbia
2Lt A. Borchert	University of Manitoba	2Lt G.J. Hooper	Dalhousie University
2Lt S.C. Brown	University of Western Ontario	2Lt A.R. Houghton	University of Saskatchewan
2Lt S.B. Ciz	University of Western Ontario	2Lt P.A. Kachanoski	University of Saskatchewan
2Lt T.S. Colina	University of Manitoba	2Lt H. Keswick	University of Alberta
2Lt P. Coulter	University of Alberta	2Lt M.P.L. Lapointe	Laval University
2Lt M.J. Cupples	University of Toronto	2Lt J.M. Maltais	Laval University
2Lt J.F.J. Forget	Université de Montréal	2Lt E.G. McGrath	McGill University
2Lt L.C. Gibney	University of Saskatchewan	2Lt D.R. Monty	University of British Columbia
2Lt M.W. Gross	University of Manitoba	2Lt W.T. Mulgrew	University of Alberta
		2Lt P.W. Pineau	University of Western Ontario
		2Lt J.A.A. Rioux	Laval University
		2Lt A. Subedar	University of Manitoba
		2Lt G.W. Willson	University of Alberta
		2Lt M.A. Wilson	Laval University

Awards

Brigadier General Begin presented the Honor Certificate Award to 2Lt S.C. Brown of the University of Western Ontario. The Field Exercise Award was won by 2Lt D.N. Albert, of Dalhousie University.



Brigadier-General J.F. Begin presents the Field Exercise Award to 2Lt D.N. Albert of Dalhousie University.



Brigadier-General J.F. Begin presents the Honor Graduate Award to 2Lt S.C. Brown of the University of Western Ontario.

Mess Dinner

One of the highlights of the Graduation Ceremonies was the Mess Dinner. The President of the CDA, Dr. Ron J. Markey addressed the guests and participants on the importance of organized dentistry and the contributions which the CFDS makes to dentistry in Canada. Δ

Executives of specialty sections represented on CDA's committee on dental specialties

One of the more recently established committees of the Canadian Dental Association is the Committee on Dental Specialties. The structure of the Committee comprises: one representative appointed from each of the dental specialties recognized by the CDA; one observer named by the Royal College of Dentists of Canada, and the chairman, appointed annually by the President of the CDA.

The Committee members are appointed for a three-year term, once renewable.

The responsibilities of the Committee are: to provide a forum for discussion of common interests and concerns of the specialists and/or specialty groups in Canada; to review and report on items referred to the Committee by the CDA Executive Council, and, to report annually to the CDA Executive Council on the Committee's activities and recommendations.

Specialty groups' executive members

The current executive members of the recognized Specialty Groups are as follows:

Canadian Academy of Endodontics

- Past-President — Dr. William Christie, Winnipeg
- President — Dr. Lorne Chapnick, Toronto
- President-Elect — Dr. Carl Hawrish, Edmonton
- Treasurer — Dr. Barry Chapnick, Toronto
- Executive Secretary — Dr. John Phillips, Oshawa

Canadian Association of Oral and Maxillofacial Surgeons

- President — Dr. Bernard Lyons, Windsor, Ont.
- President-Elect — Dr. Jack Zosky, Toronto, Ont.
- Past President — Dr. David Precious, Dalhousie U., Halifax
- Secretary — Dr. Aron Gonshor, Montréal, Qué.
- Treasurer — Dr. T.R. Stevenson, Edmonton, Alta.

Canadian Academy of Oral Pathology

- President — Dr. R.W. Priddy, U.B.C., Vancouver

- President-Elect — Dr. S.I. Ahing, U. of Man., Winnipeg
- Vice-President — Dr. R.J. McComb, U. of Toronto
- Secretary-Treasurer — Dr. J.G.L. Lovas, Dalhousie U., Halifax
- Immediate Past President — Dr. David Mock, U. of Toronto

Canadian Academy of Oral Radiology

- President — Dr. C. Price, U.B.C. Vancouver
- Past President — Dr. C.G. Baker, U. of Alberta, Edmonton
- President-Elect — Dr. D. Forest, U. de Montréal
- Secretary-Treasurer — Dr. M.J. Pharoah, U. of Toronto

Canadian Association of Orthodontists

- President — Dr. Richard L. Pass, Burlington, Ont.
- President-Elect — Dr. Yale G. Malkin, Vancouver
- Past President — Dr. Wayne B. Barro, Dartmouth, N.S.
- First Vice President — Dr. Malcolm Yasny, Toronto, Ont.
- Second Vice President — Dr. Terry D. Carlyle, Edmonton, Alta.
- President — Dr. Morley I. Bernstein, Winnipeg, Man.
- Secretary-Treasurer — Dr. Brian Hurd, Burlington, Ont.

Canadian Academy of Pediatric Dentistry

- President — Dr. A.F. Dungy, Ottawa, Ont.
- President-Elect — Dr. Peter Pronych, Dalhousie U., Halifax
- Past President — Dr. Franklyn Pulver, Toronto, Ont.
- Secretary — Dr. Murray H. Diner, Montréal, Qué.
- Treasurer — Dr. J. Victor Legault, Montréal, Qué.

Canadian Academy of Periodontology

- Past-President — Dr. Ken Herschenfield, Willowdale, Ont.
- President — Dr. Edward Hannigan, Halifax
- President-Elect — Dr. Gary Foshay, Halifax

- Secretary — Dr. Malcolm Miller,
Calgary, Alta.
- Treasurer — Dr. Dan Morrow,
London, Ont.

Canadian Society of Public Health Dentists

- President — Dr. Jack Hann, U.B.C.
Vancouver
- Past President — Dr. Roger Ellis,
Toronto, Ont.
- President-Elect — Dr. Benoit LaFontaine,
Québec, Qué.
- Secretary-Treasurer — Dr. Neil A. Farrell,
London, Ont.

Association of Prosthodontists of Canada

- President — Dr. Michael MacEntee,
U.B.C., Vancouver
- President-Elect — Dr. Ken Sutherland,
U. of Sask.,
Saskatoon, Sask.
- Vice President — Dr. Bruce Graham,
Dalhousie U., Halifax
- Secretary-Treasurer — Dr. Lawrence
St. Pierre, Barrie, Ont.
- Past President — Dr. Hubert Gaucher,
Québec, Qué.

Members of the current Dental Specialties Committee are:

- Dr. J. Wright, Chairman, Winnipeg —
Canadian Academy of Periodontology
- Dr. H. Gaucher, Ste-Foy, Association of
Prosthodontists of Canada
- Dr. J. Phillips, Oshawa, Canadian
Academy of Endodontics
- Dr. C. Price, Vancouver, Canadian
Academy of Oral Radiology
- Dr. D. Precious, Halifax, Canadian
Academy of Oral & Maxillofacial
Surgeons
- Dr. R. Pass, Burlington, Canadian
Association of Orthodontists
- Dr. D. Mock, Toronto, Canadian
Academy of Oral Pathology
- Dr. N. Farrell, London, Canadian Society
of Public Health Dentists
- Dr. A. Dungy, Ottawa, Canadian
Academy of Pediatric Dentistry △

Did you know?

When Dr. Jack Niedermayer of Regina assumed the leadership of CDA at the Edmonton Convention in August, he became the 69th President of the national organization.

Past CDA president, Dr. Hector R. MacLean, passes in Edmonton

Edmonton dentist Dr. Hector Robertson MacLean, who achieved international stature for exceptional leadership skills and as a dental educator, died recently in that city in his 84th year.

He served as President of the Canadian Dental Association in 1969-70 and as Dean of the Faculty of Dentistry, University of Alberta, from 1958 to 1970.

Dr. MacLean received his DDS degree from the University of Alberta in 1928 and maintained a private practice in Edmonton from 1930 to 1958.

His career as an academic began in 1935, when he joined the staff the University of Alberta's dental school. In 1946 he was named Professor of Restorative Dentistry and in 1948 became Head of the Section of Oral Diagnosis. In 1958 he was appointed Dean of the Faculty of Dentistry.

Dr. MacLean first served the Canadian Dental Association as a member of CDA's Organization Committee in 1942. From 1950 to 1961, he was Chairman of CDA's Council on Auxiliary Services and in 1952, with CDA's Organization Committee, National Dental Examining Board. He was Alberta's Governor on the CDA Board of Governors from 1963 to 1970, and a member of the Executive Council from 1965 to 1969.

In 1978, Dr. MacLean was named an Honorary Life Member of the CDA.

In his home province, Dr. MacLean served as President of the Alberta Dental Association in 1943, 1952 and 1953.

On the international scene, Dr. MacLean was a member of the Executive Council of the American Association of Dental Schools from 1961 to 1967 and President of the International College of Dentists in 1963-64. Active in Fédération Dentaire Internationale circles, he was a member of FDI's Committee of Organization of Dental Practice from 1970-74, and Consultant to the FDI Commission on Education from 1970 to 1976. In 1973, he conducted a survey of Dentistry and Dental Education in Papua-New Guinea, for the FDI. He conducted similar surveys for other health agencies, in Indonesia and the Caribbean.

Dr. MacLean also offered his services and talents as a member of the National Dental Examining Board from 1953 to



Dr. Hector Robertson MacLean

1968. In 1968, he was President of the NDEB.

He became a member of 13th Company of the Canadian Dental Corps in 1945, and was Consultant, Oral Diagnosis and Roentgenology for the Corps from 1960 to 1973.

He conducted clinics and gave lectures in centres across Canada and the United States, and many other countries of the world. His papers were published in Canadian and foreign dental journals and periodicals.

In 1984 his Alma Mater honored him with its Dental Alumni Outstanding Achievement Award.

Dr. MacLean was a Life Member of the Alberta Dental Association, the Canadian Academy of Oral Radiology, the American Academy of Oral Roentgenology, American Academy of Gold Foil Operators, Canadian Academy of Restorative Dentistry and the Canadian Dental Association.

He was a Fellow of the American College of Dentists, the International College of Dentists, the Royal College of Dentists of Canada and the Fédération Dentaire Internationale.

He was also active in community affairs, as a member of the Alpine Club, the Kinsmen Club, the Gyro Club, the Masonic Order and a country club. △

New synthetic vaccine offers protection against Hepatitis B

The Canadian Dental Association, in cooperation with Smith, Kline and French Canada Ltd., conducted what proved to be a well patronized Hepatitis B vaccination clinic at the CDA Convention in Edmonton.

Upwards of 250 dentists and other dental personnel took advantage of the opportunity to receive their first vaccinations of Engerix-B recombinant during the day and a half clinic.

Dr. Michel Jahjah, CDA's general chairman of annual conventions, expressed keen interest and satisfaction in the success of the clinic. He showed strong support of a similar clinic presented earlier this year at Les Journées dentaires du Québec in Montréal. He has been encouraging all dental personnel to be vaccinated against Hepatitis B, a serious and sometimes fatal liver disease which can be transmitted through blood, saliva and other body fluids.

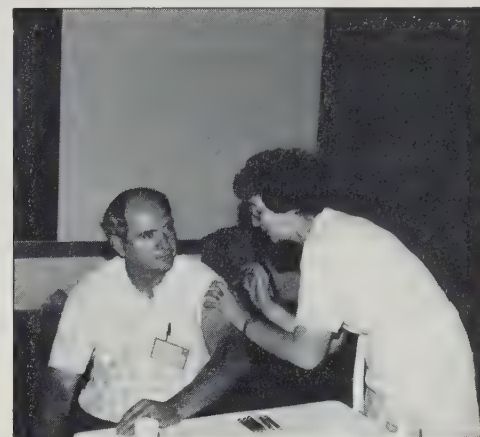
"Previously, dentists were reluctant to

be vaccinated against hepatitis B because of a perceived fear the earlier blood plasma-derived vaccines were contaminated. With the new synthetic-engineered vaccines there is no risk of contracting other transmissible diseases," he adds.

"Engerix B," is a new synthetic-engineered Hepatitis B vaccine recently introduced by Smith Kline & French Canada Ltd. Three doses of the vaccine are needed for complete protection against this silent visitor to dental offices.

A study published May 6, last, in the *Journal of the American Medical Association* concluded that the use of gloves and other protective devices does not appear to offer substantial protection against Hepatitis B virus exposure in oral surgeons, and recommended that all oral surgeons receive the Hepatitis B vaccine.

Other groups considered at high risk include physicians, surgeons, medical students, nurses, laboratory technicians, institutional personnel working with the



Dr. Martin Collins of Kelowna, B.C. receives his first vaccination of Engerix-B Hepatitis vaccine at the Hepatitis B vaccination clinic held at the CDA Convention in Edmonton. Administering the vaccine is Hazel Peterson, RN, from the Edmonton Medical Registry.

mentally handicapped, armed forces personnel, police, illicit drug users, homosexuals, and travelers to areas of high Hepatitis B prevalence such as southeast Asia, China, tropical Africa and the Caribbean. Δ

U of T invention bites back against tooth decay

A powerful new weapon developed at the University of Toronto to battle tooth decay will be available to dentists across Canada as soon as the federal government approves the unique idea.

Researchers created and patented a process that eliminates the major bacterial cause of tooth decay, and recently won a prestigious national business award for their efforts. The award was a Bronze Trophy in the Invention and Industrial Design category of the Canada Awards for Business Excellence (CABE) program.

The innovative dental varnish treatment protocol is currently going through Health and Welfare Canada's approval process. As soon as final approval is given, the varnish will be manufactured and marketed directly to dentists in Canada. Distribution eventually will be worldwide.

The two-step process was developed by a team of researchers led by Dr. James Sandham at the Faculty of Dentistry.

To eliminate the *Streptococcus mutans* (*S. mutans*) bacteria, a combination of

therapeutic and binding varnishes is used. The transparent therapeutic varnish is applied first. It contains chlorhexidine acetate and Sumatra benzoin. A second layer of polyurethane varnish is painted overtop to seal the therapeutic layer. The varnish falls off after about five days.

So far the treatment has achieved success rates as high as 66 per cent and patients using the varnish have remained free of bacteria for almost four years without serious side effects. All varnish ingredients are used in other dental applications and have well-established safety records. Chlorhexidine is the primary therapeutic agent in the varnish.

Tooth decay costs Canadians about \$1 billion a year.

A patent on the treatment was first taken out in 1985 by the University of Toronto Innovations Foundation. Subsequent refinements to the process are also being protected.

"The size of the potential market is limited only by the number of dentists and patients worldwide," said Ralph

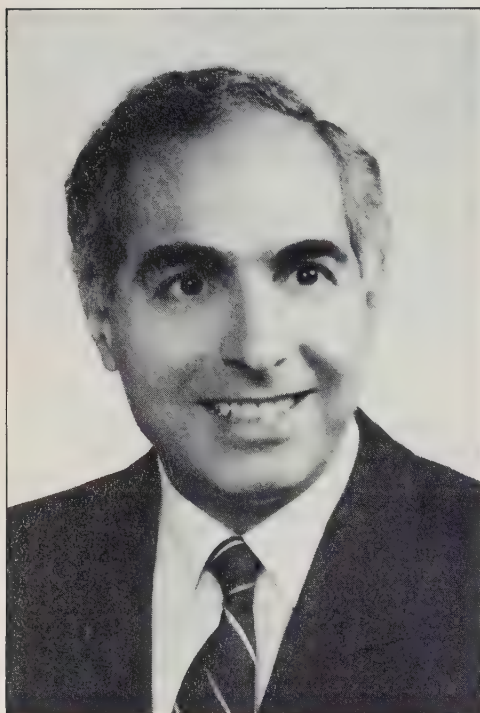
Rethoret, Manager of Medical Products for the Innovations Foundation. "The product will be made in Canada and we expect significant export sales."

Those sales will get a boost as a result of the CABE award which allows recipients to use the program's official symbol in product advertising and promotion. National promotion of the CABE program and its winners will also help marketing of the varnish.

Each patient usually requires several treatments to eliminate the *S. mutans* bacteria, according to University researchers. Treatment costs are expected to be minimal because the process requires no new equipment and high product volumes are expected to help reduce the costs.

Established in 1984 by the federal government, CABE program awards are made annually in each of eight categories: Small Business; Productivity; Marketing; Entrepreneurship; Labor/Management Cooperation; Innovation; Invention and Industrial Design. Δ

Dental organizations elect new officers



Dr. Robert J. David

At the annual general meeting of the Montreal Dental Club, Dr. Robert J. David, who practises dentistry in downtown Montreal, was elected President for the year 1988-89.

Other officers named were: Drs. Roy Foster as President-Elect; Bruce Oliver, Vice-President; Gerald Weinlander, Secretary; William Donahue as Treasurer; C. Leo Moran, Historian/Archivist; and Directors: Drs. John Badger, Petra Dando, John Drummond, Lloyd Flanagan, Jane Lee and John Taylor.

Dr. Robert David, the new President, is a graduate of the Faculty of Dentistry, McGill University (1962). He conducts a private practice in Montreal and teaches part time in the Faculty of Dentistry at McGill. He holds the rank of Assistant Professor. He is a Fellow of the International College of Dentists and of the Academy of General Dentistry.

The Montreal Dental Club was founded in 1897 and is the oldest scientific dental club in Montreal. △

Dr. Nasser Dibai of Montréal was elected President for the 1988-89 term at the annual meeting of the Canadian Academy of Prosthodontics held in Edmonton, August 19 and 20, last. He succeeds Dr. Bruce Jackson of Kitchener-Waterloo Ontario.

Dr. Dibai received his DDS degree from the University of Teheran, Iran, in 1954 and his MSc in Prosthodontics at Ohio State University in 1974.

He is presently Associate Professor and Head, Section of Removable Prosthodontics at the Faculty of Dentistry, McGill University, Montreal.

Other officers elected at the meeting are: Drs. Carl Osadetz of Edmonton,



Dr. Nasser Dibai

President-Elect; Alan Mills, London, Ont., Secretary-Treasurer; Harry Gelfant, Vancouver, Senior Past President; Bruce Jackson, Kitchener, Ont., Junior Past President. Councillors are: Drs. Robert Brygider, Halifax; Dennis Nimchuk, Vancouver; Ben Saik, Calgary; George Scott, Hamilton, Ont.; Harry Fleishman, Winnipeg and Kira Obrazcova, Ottawa.

New executive members of the Alberta Dental Association assume offices



JCDA PHOTO BY CLARENCE METCALFE

At the 1988 Annual Meeting of the Alberta Dental Association in Edmonton, August 21 last, the 1988-89 executive members assumed their respective offices. Pictured above are, left to right: Dr. Gayle Mabey of Edmonton, who is President-Elect; Dr. Gerry D. Harle, also of Edmonton, Vice-President; Dr. Vernon H. Jones of Calgary, Past-President, and 1988-89 President, Dr. Richard Sandilands, of Edmonton.

Gallup Poll

The Dental Awareness Program works! There have been some startling changes in the way Canadians think about dentists and dental health since the Dental Awareness Program began in 1985. So says a preliminary analysis of a poll of Canadians conducted on behalf of the Canadian Dental Association by Gallup Canada Inc., the well known polling agency.

In 1985, the CDA commissioned the Gallup organization to find out among other things, what Canadians thought about gum disease, dental costs, the condition of their teeth and how frequently they visit the dentist. The results of that survey have served as an historical benchmark by which to measure shifts in attitudes and behaviour with respect to dental health.

In order to track changes in dental health attitudes over the past three years, the CDA had the Gallup organization repeat the survey during July, 1988. In total 1038 adults, 18 years of age and over, were personally interviewed in their homes across Canada. The respondents were asked ten questions, some with a number of corollary questions appended.

Here is a selection of the more interesting results of this new poll:

- There has been a 9 per cent increase in the number of Canadians who report visiting the dentist once a year or more (from 59.9 per cent in 1985 to 65.3 per cent in 1988.) This suggests there has been a substantial increase in the "busyness" of dental offices across Canada.
- The largest single increase in fre-

quency of dental visits is among those Canadians who are more than 50 years old — 16.4 per cent more older adults now visit the dentist once a year or more (from 42.2 per cent in 1985 to 49.1 per cent in 1988).

- By the way, men are still less likely to visit the dentist than women — but the gap is closing!
- 80.0 per cent of Canadians identify themselves with a specific dentist. This represents a high level of potential dentist/patient loyalty.
- 20.0 per cent of Canadians receive no reminders of their next checkup from dental offices. In fact, 10.0 per cent of the most frequent dental consumers (those who visit the dentist once a year or more) are not reminded of their next checkup.
- The majority of adult Canadians (65.2 per cent) still believe they will not experience gum disease in the near future. This has not changed substantially since 1985. Only on the Prairies do more people now recognize the potential threat of gum disease (an increase of 12.2 per cent)
- 12.2 per cent more Canadians now believe that dental costs are not reasonable! In Ontario, the proportion of people who feel this way rose dramatically, from 59.7 per cent to 76.1 per cent.
- Better news comes with respect to anxiety about visiting the dentist. The proportion of people who now do not associate going to the dentist with pain has increased 26.0 per cent, from

46.4 per cent in 1985 to 53.2 per cent in 1988.

Watch for more highlights from Gallup '88 in future issues of the Journal!

Dental Awareness Program ... On Track

At its meeting in August, the CDA's Board of Governors approved the continuation and expansion of its Dental Awareness Program for a further two years until the end of 1990.

The Dental Awareness Program began in 1985 with the goal of positioning the issue of dental health in the forefront of the minds of Canadians. It is clear from the Gallup results outlined above and other measures that the Dental Awareness Program has had a demonstrable impact on the public, the media, CDA members, and key government agencies.

In Phase Three, which will take place over the next two years, the Dental Awareness Program will see the CDA expand its public awareness campaign. This campaign is aimed at communicating to Canadians the importance of dental health and the central role that dentists play in preserving it.

In order to achieve its goal, the CDA will continue to build on working relationships with provincial dental associations and increase the access CDA members have to information, resources and programs that will help them expand and improve the delivery of dental health services. Δ



C A N A D I A N D E N T A L A S S O C I A T I O N

*"I'd like to see an amalgam alloy
with recognized clinical performance."*



Presenting **phasealloy**
a second generation dispersion-phase alloy

- desired compressive strengths
- low creep value
- gamma II phase eliminated after 3 or 4 days
- positive pack condensability
- smooth carving characteristics
- marginal integrity

phasealloy[®]
another top clinical performer

**Now available exclusively
from Hoechst Canada Inc.**

*Reg. Trademark of: Phasealloy Dental Products, Division of Wykle Research, Inc., U.S.A.



and Hoechst, Reg. Trademarks of Hoechst AG, Germany (West)
Authorized user of trademark: Phasealloy[®]
2228/8127/E

Hoechst Canada Inc., Montreal H4R 1R6

Hoechst



Capitation: A personal experience

An interview with Dr. David Rizk



Dr. David Rizk, left, being interviewed by Journal Editor Dr. Ralph Crawford.

Editor's note: Dr. David Rizk, an Ottawa native, graduated in dentistry from California's Loma Linda University in 1986. He sought a career in Phoenix Arizona, and soon found himself involved with Capitation. When it came to the Journal's attention that everything we had heard wrong with Capitation had happened to this young dentist, an interview was arranged.

The episode is one dentist's experience and the Journal is appreciative to Dr. Rizk for his willingness to discuss, with candour, an event that occurred so early in his dental career.

Dr. Rizk has agreed to communicate with anyone who wishes further information; his telephone number in Ottawa is (613) 232-4747.

Journal: Dr. Rizk, you are a Canadian, raised in Ottawa. You took your dental education in United States, graduating from Loma Linda University in California in 1986. As I understand, you subsequently, shortly after graduation, became involved in a Capitation plan in Scottsdale, Arizona — tell us now, "Why Scottsdale, and why Capitation?"

Dr. Rizk: I lived in Scottsdale — the practices I was involved with were in Phoenix — I did not become personally involved with the Capitation programs, I became involved with offices that dealt with Capi-

tation programs. I did not initially seek to become involved in Capitation plans. When I first began, fresh out of school and started to work for them I was

When I first began, fresh out of school and started to work for them I was unaware exactly what Capitation meant. I had heard the term Capitation used and I had read a little bit about it but I really did not understand what it all meant.

unaware exactly what Capitation meant. I had heard the term Capitation used and I had read a little bit about it but I really did not understand what it all meant. I was just getting my feet wet at the time.

Why Scottsdale and Why Capitation: we chose, my wife and I, to move to Arizona. My wife's home is near Scottsdale — Scottsdale was also a beautiful city and we figured it would be nice to live there and it was — we enjoyed our time there very much.

Journal: When you got started in Capitation: it must have sounded pretty good to

you. Were you like any other new dental graduate, recently married, probably broke?? You were probably looking for a practice and looking to get started in a hurry and get established.

Dr. Rizk: I wasn't broke but I had a lot of expenses to pay: I had student loans to pay, insurance to pay, a car. I wanted a home for my wife — yes, I had bills.

Working for these dental offices sounded like I was going to make a decent living from them.

Journal: Quickly?

Dr. Rizk: Quickly! It wasn't like I was going to have to turn around and open up a practice and sit there for two or three years before I could make a decent living. You must remember, I was not the owner of the office — I was there as an employee or an associate, and I was working for the office which had the Capitation plan. The different offices where I worked had different financial arrangements with me.

Journal: Did you seek out the Capitation people or did someone else seek you out?

Dr. Rizk: No, I did not seek them out. I was looking for a position; there was a job offer at this one office that I looked into and I was hired on a salaried basis. I was unaware of the exact amount of Capitation in the office.

When I started I asked the dentist/owner how much Capitation the office did I was told "minimal — something like ten percent". When I actually got in there it was a different story. I was still pretty naive; I had no idea what Capitation meant and what the plan entitled or what the benefits were. I was never exactly sure what the owner/dentist's benefits were. I know he received benefits from the Capitation plans; what those figures were I don't know. I guess I was pretty naive.

Journal: Can you briefly then tell how the Capitation plan worked in the first office?

Dr. Rizk: The Capitation people would go to the industries in the area, for example, the Motorola industry and Honeywell. These companies were no doubt made an offer that looked inexpensive to them. The Capitation people would then seek out dentists.

Then the patients would start coming to the office and they would firstly be

When I actually got in there it was a different story. I was still pretty naive; I had no idea what Capitation meant and what the plan entitled or what the benefits were.

labelled as "yellow people" because that was the color of the chart that was assigned to all Capitation patients. When you knew it was a "yellow person" coming in the whole realm of dental practice took on a different meaning for those people.

Journal: And fee for service patients? They must have had another name.

Dr. Rizk: Yes, "Fee for Service!!" The yellow was merely an identifiable mark — it would determine the kind of treatment they would have.

Journal: How were these people treated?

Dr. Rizk: In this first office we always cared about our patients. They were always treated to the best of our ability. We were always good with them.

However; when it came for their actual dental treatment, things were altered slightly . . . to put it lightly.

Patients would come in for an examination and instead of giving them full mouth x-rays we would examine just the particular area they were concerned with or take a couple of bite-wings; we would try to get by with as few x-rays as possible — simply because they did not have to pay for any x-rays taken. X-rays were considered one of the benefits. It was "free" of charge, (in the patient's mind).

The examination was considered "free" of charge; cleaning, prophylaxis was considered "free" of charge; amalgam restorations, no matter what size they were, were considered "free of charge". Extractions, simple extractions, were considered "free".

So, in a sense, what the owner of the practice would like to see for his employees, the dentists, NOT to do, was involved amalgams, full mouth series x-rays, unless absolutely needed. He wanted to see crown and bridge work, onlays and inlays. The least amount of

x-rays. He wanted to see less time with treatment planning with the patient and more time with other patient needs. If a fee-for-service patient walked into the practice, they were walking into a red carpet. You could spend all the time you wanted on those patients. The Capitation patients could wait — they were on Capitation.

Journal: When it came to the crown and bridge then how was that covered under the Capitation plan?

Dr. Rizk: Crown and bridge; we would receive in this one practice about \$140.00 per unit and the regular fee at this practice for fee for service patients was at least \$350.00.

Journal: That would be for a single crown?

Dr. Rizk: The Capitation patient would have to pay that \$140.00. There was a specific fee guide for crown and bridge. The patient was actually getting a pretty good deal BUT the patient and I were unaware for several months that the quality of the crown was different from the fee for service.

Journal: You mean that the crown that you provided for the fee for service patient was a different crown than you provided for the Capitation patient?

Dr. Rizk: Yes; the crown that was provided for the Capitation patient in this one office I was working in was of a lower quality. I believe that laboratory costs for regular crowns — porcelain to metal crowns — was somewhere in the vicinity of \$80.00; for Capitation patients it was \$40.00.

Journal: How can they produce a crown for \$40.00?

We would examine just the particular area they were concerned with or take a couple of bite-wings; we would try to get by with as few x-rays as possible — simply because they did not have to pay for any x-rays taken. X-rays were considered one of the benefits. It was "free" of charge, (in the patient's mind).

Dr. Rizk: I have no idea.

Journal: The laboratory then knew that it would be a Capitation or a fee for service crown? And they then gave a different quality?

Dr. Rizk: Yes.

Journal: Would the Capitation patient know that?

Dr. Rizk: No: I don't think the owner of the practice realized that this was happening. I think he felt that the owner of the laboratory who was a good friend was giving him this fee because of the quantity of the crown and bridge work he was doing.

Journal: What did the patients expect? Did the patients feel that the dentistry they were getting was any different? Did they feel they were getting a better deal under Capitation or did they really know that they were being handled differently?

Dr. Rizk: All that the patients knew was that, "heck, in this office I can get a crown for \$140.00 and at that office down the street I have to pay \$350.00 to \$400.00 for a crown. Hey, this is a great deal". They had no idea of the type of crown.

I was not even aware what was going on until I was in the practice for about eight months. It was just by accident that I found out because I was looking around for a practice to purchase. I was considering this one practice when the owner of the laboratory called me up and told me he wanted to talk to me before I chose the laboratory I wanted to use. That's when he explained to me the different lines of product. He has an "A" line for fee for service crown and bridge and the "B" line for Capitation. That's when I found out that this office was receiving the "B" line products.

Journal: Do you feel that the office that you were in was an exception or was this common practice?

Dr. Rizk: It was common practice in the Phoenix area.

Journal: Do you feel there was a real swing towards Capitation, and do you feel that the Capitation companies were making big inroads? On what were they selling their Capitation? What made them so popular?

If a fee-for-service patient walked into the practice, they were walking into a red carpet. You could spend all the time you wanted on those patients. The Capitation patients could wait — they were on Capitation.

Dr. Rizk: For the young dentist coming out of school, his/her dream is to have their own practice.

I will give you an example — it almost happened to me. I went to some dental consultants about opening a practice. Everything was optimistic and looked real good: they told me of all the things they were going to do for me and they told me how successful I was going to be. It all happened so fast; I took a step back, looked at it and explored around. I'm glad now I didn't jump in "all the way".

That is when I heard how these consulting companies work. They put everything together for you. They seem to take care of everything — they set you up!! All of a sudden, you are open for business. Well, several months go by and you realize "Heck, I'm not cutting it. I've got overhead to pay, I've got debts, and there just aren't enough patients. So now what I do?"

That is when the consultants come back to you and tell you: "Well we think it is time that you consider one of these Capitation plans. Even though you have to give some dentistry away at a reduced fee, it is still an income for you. Right now you haven't got anything". That's when they load you up with a Capitation program. And that's when your practice takes on a different meaning. They tell you: "Get into Capitation now and when you start doing well you can get out of it".

Journal: How hard is it to get out of Capitation?

Dr. Rizk: For me it wasn't a problem. I never had a contract with Capitation — I had a contract with the owner of the practice. To me it was thirty days' notice — either way. I don't think it is hard to get out of the Capitation plan. The problem is not getting out of the plan. The problem is what happens if one day you are seeing 2,000 Capitation patients and all of a sudden, Monday of the following week, you are no longer on this plan. What do you do with all those patients you have seen? What happens to your practice at that time? It is hard to make that changeover.

Journal: Tell us more of the difference between Capitation and fee-for-service patients.

Dr. Rizk: Fee-for-service patients know that you have a Capitation office. Fee for service breeds fee-for-service people and Capitation breeds Capitation patients in any practice.

Journal: Are fee-for-service patients actually treated differently in an office that is Capitation?

Dr. Rizk: Absolutely. When a fee-for-service patient comes in you do not want them to wait. They are your valued patients. They are the patients who are paying the full fee so you want to spend most of your time with them.

If you have a fee-for-service patient in your chair, they are given 100 per cent of our time. We do not want to interrupt their treatment. If it is a Capitation patient, you are sitting there doing five alloys and not getting a penny out of it. All of sudden a fee-for-service patient comes in and you are doing five alloys for them and you are collecting \$40.00 an alloy. Who are you going to spend more time with??

Journal: Yes, but the Capitation patients are paying with a lump sum each month. It is not as if you are really losing money!

Dr. Rizk: Capitation patients are not paying the dentist a lump sum — the plan is. My understanding was that the office was receiving about \$8.00 per month per patient and how much work can you do for \$8.00?

Journal: It would seem then that there is a tendency in a Capitation office that there is "no free lunch!!".

Dr. Rizk: Unfortunately yes. That is how it works. Anyone who thinks they can get on these Capitation programs and give the same type of treatment to fee-for-service patients as they would to those on Capitation are totally mistaken. If you see ten patients on Capitation who need crowns at \$150.00 each, how can

When you are restricted as to which dentist you can see, I don't consider that freedom. When the dentist is restricted to what type of fee he wants to charge patients I don't call that freedom.

you compare that to ten fee-for-service patients at \$400.00 each. How can you justify that?? Somebody has to lose. The dentists are losing but even more important — the patients are losing.

Journal: What happens in the Capitation office for specialized services, such as surgery, endodontics, periodontics?

Dr. Rizk: That's a good question. It brings up the whole question of freedom of choice. We are a democratic society and we are accustomed to living under that system. Patients are told that they have freedom of choice to choose Capitation; the dentist is told he also has the choice to be on Capitation. Well that sounds just fine! However, you have got to remember that freedom means freedom for life, not just freedom for the time being. Once you have chosen these people that is where your freedom ends. You are restricted to whom you can see. When you are restricted as to which dentist you can see, I don't consider that freedom. When the dentist is restricted to what type of fee he wants to charge patients I don't call that freedom. When the dentist is restricted to which lab service he can use, this is not freedom. When the dentist is restricted to whom he can refer patients in order to receive the best treatment, I don't call that freedom either. Specialists who are on Capitation programs in the area I was working in were giving 25 per cent discounts to people on Capitation programs.

For example, if you felt that Dr. George . . . was the best oral surgeon in the area and you really respected him for his ability you would want your patient to go to his office. If he didn't accept Capitation your patients just didn't see him. If the patient really wishes, he can go and see Dr. George — but he would be paying the full fee for service. Thus, sometimes the payment the patient makes to Capitation plans are of no benefit to them.

Journal: The specialists who were under Capitation, were they also required to deliver their types of service for a lesser fee??

Dr. Rizk: That's right — it was a 25 per cent discount.

Journal: I understand that the first office in which you worked went broke. Was this because of the Capitation?

Dr. Rizk: I believe that directly or indirectly Capitation was a factor. When I was there, I was sitting doing discount alloys, discount cleanings and discount extractions; they were all income out of the practice. A good portion of the patients that were seen were at "give-away" fees — how can you survive!!

At the beginning it sounds great. These Capitation companies come to you and say that they will provide you 2,000 patients, all of whom need a dentist. But after several years you look down the road and you see there are three or four other dentists within the community all on Capitation — on the same plan. What happens to those patients? They become dispersed throughout a number of offices.

Journal: The patient then had the choice of a number of Capitation offices?

Dr. Rizk: Yes; the patients often had a list of three or four dentists.

Journal: This office was then struggling because they were seeing too many Capitation patients?

Dr. Rizk: Yes. However, the reason the office had to close may have been a combination of a number of things but certainly Capitation was one of them. I can say though, that this particular office always provided good quality care, despite the compromises under the Capitation plans.

There was an overhead to meet and the practice was compromised into doing alloys all day, when in fact many of the patients required crowns and bridges which weren't provided because they weren't completely covered under the plan. The patients more often than not refused to pay for them on their own, because they were under the impression that all their dental needs were to be free of charge under their Capitation plan.

I can't say for sure that he went broke because of Capitation — I just know for sure that if all the patients he was seeing were fee-for-service then he would not have gone under.

Journal: What about the utilization rate? Was it the same under Capitation as with fee-for-service?

Dr. Rizk: To be honest with you, I just don't know.

Journal: You then went into a second office in the Phoenix area and in that second office I understand there was quite a number of Capitation plans, and quite a number of dentists. Could you describe that office?

Dr. Rizk: In that office there were several different Capitation plans and it varied between three and four dentists, along with the owner and a periodontist who came in once a week.

There was also a specific oral surgeon to whom we were to refer patients. Unlike the first office where I was paid a salary, in the second office I was on a percentage. If you wanted to make money to pay your bills (I had loans, a home and a wife to support), you really had to produce. It was difficult to earn a great deal because much of the dentistry you did was the Capitation "free" variety, or at least at greatly reduced fees. I think the owner of the practice did pretty well because he had three or four others to contribute to his well-being. All the associates were young guys — just a year or two out of school. They were ambitious — they were ready to work. The owner/dentist would also receive a percentage from the specialists to whom he referred treatment. He even had his own laboratory (almost entirely crown and bridge).

Journal: What about the quality of laboratory work?

Dr. Rizk: In this office, the lab work was the same for all patients. It appeared to be of good quality.

Journal: Well then, what about the quality and standards in general; that is supplies, treatment, expectations??

Dr. Rizk: No question: this was a Capitation office and standards were geared to the lower fees generated at the Capitation level. Alloy material, although acceptable, certainly wasn't the best. All supplies were of the cheaper lines. Of course they had to adhere to ADA standards, but we were not allowed to pick and choose our favorite materials. Instruments were old and dull, equipment would constantly

break down and it was difficult to get the practice to replace or repair the items.

Journal: What about the patients; did they receive all that they wanted, needed or expected?

Dr. Rizk: Don't get me wrong; patients weren't neglected or abused. We were young professionals with our own standards but the office did have an influence on treatment.

X-rays were kept to a bare minimum; cleanings and oral hygiene instructions often hurried through, and because the patients had to pay that undesirable "extra" for required crowns, they often preferred to place amalgam restorations. You couldn't blame the patients — they thought that their plan provided everything and if they were asked to get involved with comprehensive restorative work more often than not, they backed off.

Sometimes the patients got more than they needed. Pulp capping was not covered in the Capitation plan but by telling patients they "had" to have a pulp capping, the office received \$15.00 more. You would be surprised at the number of pulp cappings that were done in that office!

Journal: Did you explain to the patients the differences between Capitation and fee-for-service?

Dr. Rizk: No, not always. Unfortunately the practice didn't belong to me and I was restricted with the liberties I had with the patients. If it was my personal office, it would probably have been a different story. I'm not telling you patients seen in this office received bad dentistry. The dentistry they received was good dentistry. Whether it was the best treatment for that particular tooth was often a different story.

Journal: Now Dr. Rizk, this is a tough question. Did it seem that the Capitation plan eventually influenced the type of treatment because a livelihood was involved??

Dr. Rizk: Absolutely! They tell you that you are at liberty to administer the best treatment you feel is needed, but in essence you are restricted financially, the patients are restricted financially and it just doesn't work out.

Journal: What then is your advice for someone thinking of Capitation?

Whether it is in United States or in Canada, I feel Capitation is Capitation — eventually. It is a "no win" situation for either dentists or patients.

Dr. Rizk: Get good advice first!! Call me; get in touch with your local Dental Association or the CDA Third Party Committee. Talk to anyone with experience, but don't go into it without seeking good advice.

I want to emphasize that what happened to me is my own personal experience but I do know a number of dentists who share my feelings.

I know that all the associates and colleagues with whom I worked had the same feelings — they were underpaid and working a lot harder than necessary.

It reduces the professionalism in dentistry. Call me; I'll just tell them what I've gone through. If Capitation tells them, "We'll give you this and we'll give you that", just call me, tell me what it is they are giving you, and I'll tell you my own experience.

Journal: In a nutshell; what advice would you have for Canadian dentists contemplating Capitation.

Dr. Rizk: Without question, I would tell them **don't!!** I don't think you should expect any other answer from me. I was in the thick of it. Arizona is a state where Capitation is common. When these Capitation people approach you, they make everything look rosy; they are salespeople. They want to sell you. They are going to benefit from these plans. They are not going to tell you that you are going to "give this away and give that away". They'll tell you that the volume is there and that you are going to make money just from the volume. They don't tell you that you are going to have to work three or four times as hard to make the same amount of income you were making on fee-for-service. They don't tell you can only refer to specific specialists. They hide a lot from you. They just want you on the plan. Again, I think you should remember they are sales people and for every Capitation plan they sell they are making money. Don't expect them to tell you it's not good for you or tell you the disadvantages. I don't want to leave the impression that every dental office in the Phoenix area was in Capitation. No, this is not the case. There are many offices that are strictly fee for service, and would never consider Capitation. Many of my colleagues there were

some of the finest and most highly qualified practitioners that I have ever had the pleasure to meet and the comments in this interview are by no means a reflection or representation of their practices. These comments are strictly in reference to my personal experience with Capitation programs.

Journal: We are told that there is a difference between the United States Capitation plans and Canadian Capitation plans. Is there a difference?

Dr. Rizk: I feel that a Capitation plan is a Capitation plan no matter how you cut it! If they think that our plans in Canada are any better they will probably be in for a surprise. In the beginning it all looks rosy, it looks real pretty. There will be a lot more people. They will say, "Your practice will be busy, there will be a lot more income". But down the road, in a few years, the dentist will find it will probably be the biggest mistake he/she has ever made!

I would rather see ten patients a day with whatever income I receive, than 20 patients, to bring in that same income. I want the freedom to give away dentistry if I want to — I want that liberty; I don't need a Capitation program to come along and tell people to go see this particular dentist at a reduced fee. I just don't need that. If a patient comes to me with a financial problem I will try to help him. The patient will then receive the quality dentistry he/she deserves.

I say educate people and tell them, "Yes, under your plan this is a reduced fee, but someone is taking the "bite" on it. If you think it is the dentist then you are mistaken. Its you, the patient who sacrifices for the quality of dentistry".

In the beginning you say to yourself you are going to give the best quality, and that you have the highest standards of anyone practicing dentistry. You will find that for financial reasons your office will start to sacrifice, and your morals will begin to be compromised.

There is just no way you can survive on seeing so many patients on such a reduced fee!!

Whether it is in United States or in Canada, I feel Capitation is Capitation — eventually. It is a "no win" situation for either dentists or patients. Δ

When they open wide – *are you wide open?*



Every day, you and your staff are exposed to blood and saliva. And that's how hepatitis B is spread—through contact with infected body fluids.

Worldwide, it is estimated that some 285 million people carry this highly infective and potentially lethal virus. For several reasons, the number of carriers in Canada is growing daily. *Unfortunately, you can't recognize a hepatitis B carrier on sight.*

That puts you at high risk.

Vaccination is your best protection. So why not practice some "preventive dentistry" on yourself and your staff. For convenience and savings, take advantage of the special order form provided on the opposite page.

Prevention is your best protection.

Engerix[®]-B is a remarkable product of genetic engineering, so it can meet the highest standards for effectiveness and purity.

Best of all, Engerix[®]-B is priced to provide significant cost savings compared to previous hepatitis B vaccines.

Choose either the conventional 3 dose schedule (months 0, 1, 6), or a 4 dose schedule (months 0, 1, 2, 12) for more rapid protection. Engerix[®]-B may also be used as a booster for those previously vaccinated with a plasma-derived vaccine.

Make a solid investment in prevention. Use the convenient form below to order for you and your staff.

Engerix[®]-B SK&F

Hepatitis B vaccine (recombinant)
Sensible protection at a sensible price

(Cut here)

No. 9096 **ENERGIX[®]-B Hepatitis B Vaccine (recombinant)**

Unit price: \$33.00 per single dose vial. A \$7.50 shipping charge must be added to orders under \$300.00. Cheque or money order must accompany order.

Please complete all sections below, enclose cheque or money order, and mail to:

Institut Armand-Frappier
ORDER DEPARTMENT
531, boulevard des Prairies, C.P. 100
Laval, Quebec H7N 4Z3

(Please print clearly, using block letters)

**Please
Ship:**

_____ vials at \$33.00 each = \$

plus

shipping charge (\$7.50) [if applicable] = \$

Total Enclosed \$

Ship to:

_____ Name

_____ Street Address

_____ City

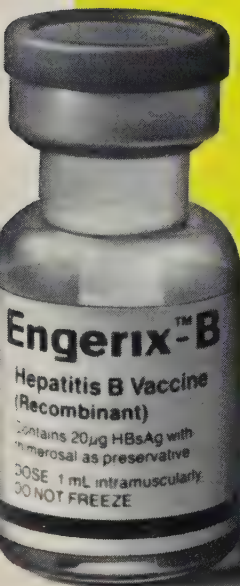
_____ Province

_____ Postal Code

_____ Telephone

Signature: _____

Date: _____



Ethics in Dentistry

L'éthique en médecine dentaire

1. Barnett, P.R. and Kowal, L.S. "Professionalism, ethics, and corporate dental care." *Compendium of Continuing Education in Dentistry*. Feb. 1988, v. 9, no. 2, pp. 156-59.
2. Barton, R.V. "Resolution of legal issues arising in the dentist-patient relationship." *Journal of the Maryland State Dental Association*. Apr. 1987, v. 30, no. 1, pp. 23-26.
3. Beazley, B.J. "Dentistry and the dental trade working together." *Journal of the American College of Dentists*. Spring 1988, v. 55, no. 1, pp. 22-26.
4. Davis, T.B. "Ethics and drug abuse (editorial)." *Texas Dental Journal*. Mar. 1988, v. 105, no. 3, p. 5.
5. Hodges, L.W. "Toward a rekindled professionalism." *Virginia Dental Journal*. Oct.-Dec. 1987, v. 64, no. 4, pp. 6-10.
6. Hook, C.R. "The four commandments. A code to ethical dentistry." *Dentistry*. Apr. 1987, v. 7, no. 2, pp. 6-7.
7. Horseman, R.E. "A code of ethics for dentistry." *Dental Economics*. May 1988, v. 78, no. 5, p. 70.
8. Johnson, D.L. and Hess, R.E. "In a crisis, give assistance, not advice." *Journal of the Oklahoma Dental Association*. Fall 1987, v. 78, no. 2, pp. 59-60.
9. Logan, M.K. "Legal, ethical issues for dentists." *Journal of the American Dental Association*. Sep. 1987, v. 115, no. 3, p. 402.
10. Marbach, J.J. "Malpractice and the temporomandibular pain dysfunction syndrome." *New York State Dental Journal*. Oct. 1987, v. 53, no. 8, pp. 37-41.
11. Nordstrom, N.K. and Soller, H. and Odom, J. "Hygiene practice ethics." *California Dental Association Journal*. Apr. 1988, v. 16, no. 4, pp. 27-30.
12. Odom, J.G. "Ethics and the cognitive development of the dentist." *Medicine and Law*. 1987, v. 6, no. 6, pp. 565-572.
13. Odom, J.G. "The status of dental ethics instruction." *Journal of Dental Education*. Jun. 1988, v. 52, no. 6, pp. 306-08.
14. Ozar, D.T. "On ethics at chairside." *Journal of the American Dental Association*. May 1988, v. 116, no. 6, p. 697.
15. Pollack, B.R. and Marinelli, R.D. "Ethical, moral, and legal dilemmas in dentistry: the process of informed decision making." *Journal of Law and*

- Ethics in Dentistry*. 1988, v. 1, no. 1, pp. 27-36.
16. Reynolds, R.J. "Professional ethics." *Journal of the American College of Dentists*. Spring 1988, v. 55, no. 1, pp. 41-43.
17. Rozovsky, L.E. "When does the dentist have to tell? Guidelines to confidentiality." *Oral Health*. Aug. 1987, v. 77, no. 8, pp. 37-38.
18. Scheutz, F. and Pindborg, J.J. "Dentists' professional and ethical responsibilities for HIV-positive patients and patients with AIDS." *Australian Dental Journal*. Aug. 1987, v. 32, no. 4, pp. 298-99.
19. Schiedermayer, D.L. "The process of deprofessionalization. Getting down to business in dentistry: the effect of advertising on a profession." *Journal of the American College of Dentists*. Spring 1988, v. 55, no. 1, pp. 10-16.
20. Schwartz, H.C. "Professional responsibility — more than just treatment (letter)." *Journal of Oral and Maxillo-facial Surgery*. Sep. 1987, v. 45, no. 9, p. 750.
21. Self, L. "Why dentists get sued." *Journal of the Michigan Dental Association*. Jan. 1986, v. 68, no. 1, pp. 41-42.
22. Shapira, E.Z. "Professionalism and ethics." *California Dental Association Journal*. Apr. 1988, v. 16, no. 4, p. 55.
23. Slagle, W.F. "Ethical professionalism." *Journal of Tennessee Dental Association*. Oct. 1987, v. 67, no. 4, pp. 24-25.
24. Stout, F.W. and Fast, T.B. "The hepatitis B vaccine: responsibilities of the dentist-employer." *Virginia Dental Journal*. Apr-Jun 1986, v. 63, no. 2, pp. 34-37.
25. Thordarson, G.R. "Moral & ethical issues related to infectious diseases in

- the dental practice." *Canadian Dental Association Journal*. Sep. 1987, v. 53, no. 9, pp. 677-78.
26. "Undermining the ethics of dentistry." *Ontario Dentist*. May 1988, v. 65, no. 4, p. 38.
27. Weber, F.N. "Professionalism in dentistry: one man's opinion." *Journal of the American College of Dentists*. Spring 1988, v. 55, no. 1, pp. 44-47.
28. "What is a professional? WDA Ethics and Dental Relations Committee." *Wisconsin Dental Association Journal*. Feb. 1988, v. 64, no. 2, pp. 78-79.

One copy of the above articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.

ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

La bibliothèque de l'ADC offre pour 5\$ à ses membres et pour 10\$ aux non membres une copie des articles ci-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherches bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982.

Téléphone: 613-523-1770
ext: 223; 226.

ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

SKI WHISTLER & BLACKCOMB

TAX DEDUCTIBLE MEDICAL/DENTAL SEMINARS
January thru March '89.

**ATTENDANCE LIMITED.
CALL OR WRITE TODAY...**



Whistler Seminars inc.

Ste. 218-2438 Marine Dr., West Vancouver, B.C.
V7V 1L2 ph. (604) 926-4078

Dentistry and the Law

Do our dentists enjoy freedom of speech and expression?

Tracey Tremayne-Lloyd, LL.B.
Toronto, Ontario*

As is now well-known, freedom of expression is a fundamental freedom prescribed under The Charter of Rights and Freedoms. Section 2(b) of the Charter specifically guarantees that everyone has freedom of thought, belief, opinion and expression which includes freedom of the press and other media of communication.

This section of the Charter has recently come under the scrutiny of the Ontario Court of Appeal in the case of *Rocket and Price v. The Royal College of Dental Surgeons of Ontario*. In this case, the issue was raised as to whether the guarantee of freedom of expression set out in the Charter extends to advertisements by dentists.

The issue arose when the Royal College of Dental Surgeons of Ontario charged College members Howard Rocket and Brian Price with professional misconduct under the *Health Disciplines Act*, R.S.O. 1980, c. 196. These charges followed the 1985 publication of a Holiday Inn advertisement which featured photographs of Dr. Rocket and Dr. Price along with a text describing the success of their expanding chain of dental clinics, Tridont Dental Centres. It should, however, be made clear that the advertisement was clearly for the promotion of Holiday Inns and not the promotion of either the individual dentists or their successful storefront clinics. The dentists were endorsing and were not directly advertising in this case. The ad was published in numerous magazines distributed throughout Canada and appeared under "New Faces of the Canadian Establishment". Referring to Tridont's principals, the ad stated: "... success like this occurs when business people recognize a need for change and respond to it. Holiday Inn is recognizing and responding to their changing needs. That is why when



Ms. Tracey Tremayne-Lloyd

Drs. Howard Rocket and Brian Price travel on business, they stay at a Holiday Inn Hotel."

The first charge accused the doctors of professional misconduct for "publishing or permitting publication of an advertisement relating to their practice of dentistry" in a way not permitted by the regulations. The second charge claims the doctors have been guilty of professional misconduct for engaging in "conduct or an act relevant to the practice of dentistry, that having regard to all the circumstances, would reasonably be regarded by members as disgraceful, dishonourable or unprofessional, in that you did lend yourselves and your reputations, for valuable consideration to the promotion of Holiday Inn. . .".

The first charge was based on s.37(39) of Regulation 447 passed under the *Health Disciplines Act* which, in essence,

prohibits dentists from advertising themselves or their services except in certain very restricted ways, such as publishing announcements when they open or relocate a practice. The second charge was based on s.37(40), which is a misconduct provision usually referred to as the "basket clause".

A hearing was to commence on these charges before the Discipline Committee of the Royal College of Dental Surgeons, however, Drs. Rocket and Price applied to the Divisional Court of Ontario to stop the discipline hearing from proceeding by requesting an order from the Court to the effect that s.37(39) and (40) of the said Regulation 447 were of no force and effect and violated the individual dentist's rights to the protection afforded by s.2(b) of the Charter. This initial court application by Drs. Rocket and Price was dismissed, but the dentists applied and obtained leave to appeal to the Court of Appeal of Ontario (the next step in the legal process).

In argument before the Court of Appeal, the dentists claimed that the fundamental right to freedom of expression guaranteed to every person is absolute in the sense that it embraces all modes of expression by the individual; it includes economic free speech of which commercial advertising is a part. The argument advanced was that the only restraints that may be imposed upon freedom of expression are such as fall within s.1 of the Charter in the form of reasonable limits prescribed by law. Those limits must be demonstrably justified in a free and democratic society. It was argued that the limits placed by s.37(39) were not so justified.

The Royal College of Dental Surgeons disagreed. It claimed that s.2(b) of the Charter does not embrace economic freedom of expression. It contended that the Royal College, like other professional bodies, has always been accorded the right to regulate advertising by its members and that this exception is inherent in

* The writer acknowledges with thanks, the assistance of Ms. Kikee Chaudhari, Student-at-Law.

s.2(b) of the Charter, so that resort to s.1 is neither necessary nor appropriate. In the alternative, the College argued that if advertising is protected by s.2(b) of the Charter, then s.37(39) is a reasonable limit on that right.

In a 2 to 1 decision, the three member Court of Appeal, however, sided with Drs. Rocket and Price. Mr. Justice Peter Cory, speaking for the majority, stated that the Court's conclusion seems to be supported by a 1987 Supreme Court of Canada case wherein it was recognized that secondary picketing in a labour dispute is protected by Charter s.2(b). Mr. Justice Cory stated that, "If picketing constitutes an expression worthy of the protection of s.2(b), so too should the commercial expression contained in advertisements, which may reach a far larger segment of society than that reached by the picketers with information which many might consider important".

Mr. Justice Cory went on to state that the useful information society may obtain from commercial messages is so important and the potential benefits are so great that they must come within the protective ambit of s.2(b) of the Charter:

"So long as the free market for goods exists in our society, then truthful and factual commercial messages will have an important role to fulfill. They are important enough to warrant protection under s.2(b) of the Charter subject, of course, to reasonable limitations to ensure that they are accurate, not false, deceptive or misleading. Such limitations as may be required could properly be exercised within the scope of s.1 of the Charter."

Accordingly, even though Mr. Justice Cory concluded that advertising or commercial expression comes within the purview of s.2(b), he still had to determine whether the regulation governing advertising by dentists could be justified under s.1.

The Court applied certain criteria, as set out by the Supreme Court of Canada (*R. v. Oakes*, 1986) in its consideration of Charter s.1. Justice Cory agreed that the measures in the health regulations are rationally connected to the objective of protecting the public, however, he could not, "accept that they impair *as little as possible* the freedom of expression of members of the College and that concomitant right of listeners to receive information" (emphasis added). This seemed to be clear from evidence presented by the College which showed the regulations in question prohibit dentists from advertising such information as office hours and the languages spoken by dentists. In his

Reasons for Decision, Mr. Justice Cory stated that, "as distasteful, pompous and self-aggrandizing as the actions of the Appellants in this case may have been, it must be remembered that what is at issue on this appeal is the validity of the regulations set forth in ss.39. Since that regulation does not meet the test enunciated by the Supreme Court of Canada [in the *R. v. Oakes* case], it must be declared invalid.

Mr. Justice Cory went on to point out however, that his decision did not mean that all regulation of advertising will be held constitutionally invalid. In fact, he stated that on the contrary, reasonable regulation may often be essential and will be required to prevent the dissemination of advertising which is false or misleading or deceptive.

It is important to note at this juncture that when *Rocket and Price* reached the Court of Appeal, the only issue before the Court concerned the constitutional validity of s.37(39) Reg. 447, *Health Disciplines Act*. The validity of the basket clause (s.37(40)) was not disputed. It may well be, consequently, that the participation of Drs. Rocket and Price in the advertising program for Holiday Inn will be found to constitute professional misconduct under the basket clause even if s.37(39) is held to contravene s.2(b) of the Charter. It is perhaps with respect to the basket clause that the dissenting judgment of Associate Chief Justice Charles Dubin has application. Mr. Justice Dubin disagreed with Mr. Justice Cory stating that the disciplinary proceedings sought to be brought against Dr. Rocket and Dr. Price did not deprive them of any Charter guaranteed rights of freedom of expression. He explained that the legislature has an interest in, "maintaining the professionalism, integrity and ethics of the dental profession and to that end, can impose limits on advertising by dentists."

It seems relatively clear from the *dissenting* judgment that Mr. Justice Dubin felt that the advertisement in question undermined the integrity, ethics and professionalism of the dental profession.

The Royal College has of course, taken steps to appeal the Court of Appeal judgment further. To do so however, the College needs "leave" (permission) of the Supreme Court of Canada in order to have the actual matter heard by that Court, and to this end, there is a motion pending for such permission. In the meantime, the College (perhaps anticipating sudden widespread advertising) obtained a "stay" of the effect of the Court of Appeal decision pending the outcome of the leave to appeal motion in the Supreme

Court. The dentists brought a cross-motion to have the stay lifted. The dentists' motion to lift the stay has been argued but, at the time of writing, the judgment had not been delivered by the Ontario court. Accordingly, the current status of the situation is that the Ontario Court of Appeal decision, to the effect that the prohibition against advertising by dentists is unconstitutional, is good law in the Province of Ontario, however, the Royal College currently still have their stay in place until a motion for leave is heard in the Supreme Court of Canada.

It should perhaps be mentioned that there is a case currently pending in the Supreme Court of Canada (*Irwin Toy v. The Attorney General of Quebec*) on the proper interpretation of s.2(b) of the Charter which could influence the ultimate determination of the *Rocket and Price* issue. The case in question deals expressly with the issue of whether or not the Charter protects commercial and economic free speech and expression are only certain types of expression such as political, artistic or cultural. Since the *Irwin Toy* case has already been argued and we await only the Supreme Court of Canada's judgment, we may know their feelings (by analogy) on the constitutionality of the advertising prohibitions laboured under by dentists before the motion for leave in *Rocket and Price* even reaches the Supreme Court list.

In the months to come, it will be necessary for the Courts to have a consideration of fundamentals in order to determine what is actually meant by "freedom of expression". In a democratic society, as we conceive it, no freedom is absolute, including freedom of expression. This acknowledged limitation stems from the common law itself, some of which has been codified in Canada by statute. Any limitation on freedom of expression, as is true of other freedoms mentioned in s.2 of the Charter, must reflect a necessary balancing of the absolute freedom of the individual and its conflict with the rights of other individuals or of the public at large. If the *Rocket and Price* case is permitted to proceed before the Supreme Court of Canada, this "balancing act" insofar as practicing dentists across the country are concerned, will be ultimately played out on their coattails. If leave is refused, the dentists' success in the Ontario case (subject to the Supreme Court of Canada reasoning in the *Irwin Toy* case) will constitute good law which will be binding authority in Ontario and extremely persuasive, if not absolutely binding authority, in every other province. Δ

STRESS MANAGEMENT FOR THE DENTAL TEAM

by James M. George,
Charles L. Milone,
Marvin J. Block and
William G. Hollister

1986, Lea & Febiger
283 pages, \$36.50

Most people who are interested in the active pursuit of personal growth and development, whether or not they have directed themselves specifically toward stress management, have read about some of the topics covered in this book. Nonetheless, the book may offer different vantages for the various routes and approaches to continued personal growth. The work is very well referenced, including selected readings at the ends of some chapters.

Here is a comprehensive overview of stress, stress factors, and the ways in which people deal with them. It uses specific examples from dental settings, as well as generalized examples of human relations. Sections on nutrition, sleep patterns, and relaxation include solid, well-documented suggestions for change, and offer corresponding checklists.

In places, the readability of the text is somewhat hampered by what seems to be a proclivity for technical completeness. The organization of the book, beginning with a section entitled "General Principles" for the first hundred pages, is somehow imposing.

The book is safely in the cognitive, left-brain domain. A little too safely. This approach may well be the least risky way to try to map out the minefield of personal stress management, but an invitation to enjoin the right-brain to affective engagement of the issues would be most welcome when we address ways to make changes. In fact, right-brain issues were touched on only in the cognitive, fish-bowl discussion of the words one might use when openly accounting for one's feelings during conflict negotiation with other dental team members.

In many places this book tends to be a bit condescending. This may be in large part a result of extensive use of the second person singular in the text, rather than a first person plural, when pointing out problems and proposing solutions.

Such a stance may be deserved, given the track records of dental personnel in the domains of stress, but considering that the book has been written by a group of dental personnel, it is annoying.

I would take issue with a few of the book's presumptions. For example, in the lifestyle section, there is acceptance of the suggestion of stress research pioneer Hans Selye that we need to compartmentalize our work lives and home lives. Although the intent is to avoid inadvertent compromise of some parts of our lives, there is no exploration of the possibility that such dissociation of the concepts of work and leisure could itself be a serious compromise which results in added stress. That I would have mulled over such concerns while reading the book is a testament to its thought-provoking subject matter, if not to its presentation.

At the risk of being declared sexist for my suggestion, I feel that the book might have benefitted very much from the contributions of a female author.

This is a good book overall, and think it could be well utilized as a text for practice management or stress management courses. Δ

This book was reviewed by:
Lance M. Rucker, AB, BScD, DDS
Assistant Professor
Department of Clinical Dental Sciences
and
Coordinator
Performance Simulation Laboratory
The University of British Columbia
2199 Wesbrook Mall
Vancouver, B.C. V6T 1Z7

MODIFICATION AND PRESERVATION OF EXISTING DENTAL RESTORATIONS

by Donald W. Fisher and
William W. Morgan

Quintessence Publishing Co., Inc. (1987)
208 pages illustrated

This well thought-out book consists of nine chapters covering the following topics: General Principles; Removal of Existing Restorations; Crown or Pontic Facing Replacement; Restoration of Abutment Teeth Under Existing Partial Dentures; Endodontic Procedures on Teeth With Existing Restorations; Marginal

Defects and Perforations in Crowns; Buildups Under Existing Restorations; Modifications to Removable Appliances; and Adjunct Procedures, such as the stereomicroscope; check-bite impression technique; indirect temporary restorations; the pindex and VIP pin systems. Of the 281 series of illustrations in the book, many are line drawings which are easily interpreted by the reader and assist to make the instructions and explanations easy to follow. As well many of the illustrations are photographs (about 43 in color) which are clear and which usefully augment the words.

All of the material in the book is not necessarily new but it is useful having it all collected in one place. Primarily the form of the book is a "how-to" manual. Each topic is opened with a discussion containing any or sometimes all of the following — philosophy, history and background, indications, contraindications and factors to consider; after which methods that are sensible, practical and easy to follow, but which sometimes are almost too detailed, are given in a step-by-step listing.

The foreword points out that "this is a book for the clinical dentist" and that "experienced practitioners and novices alike will find this book well worth reading." Every practitioner has encountered restorations that have problems where it was not best to remake them. This book suggests ways of preserving recently placed, flawed restorations, or ones that may have been placed years earlier and "possibly made with materials no longer in manufacture, or by techniques no longer used."

It must be pointed out that one philosophical principle of the authors comes through loud and clear. This is not a "quick-fix manual for doing patchwork dentistry." It is very evident that the authors are committed to quality — not only quality of techniques and materials but also quality in professionalism, and the methods given in this book are for producing quality treatment for patients.

There are few, and minor things in the book which cause concern. Some examples are: in Fig. 1-12 (p. 23) the authors illustrate possible defects for crown-to-tooth junctions, but one of those possibilities is probably impossible to produce. The drawings in Fig. 5-13 (p. 106) seem to be reversed according to the explana-

tions. Page 148 gives a method for making a cast post and core for an endodontically treated molar where the "Crown cannot or has not been removed." The question arises — why do it? There are a few places where perhaps unnecessary duplication exists. Lastly the copy used by this reviewer has been opened multiple times but being a 'how-to' manual the implication of multiple use exists. It might be mentioned that the back is already starting to break on the new copy that was provided for this writer.

In summary — this is a book with much potential usefulness for the general dentist and perhaps also for the specialist. It contains good ideas, easy to follow steps and gives much encouragement to practice the best of operating principles. Δ

*This book was reviewed by:
Walter C. Meyer, DDS, MMus
Faculty of Dentistry,
University of Alberta,
Edmonton, Alberta.*

NEW TRENDS IN DENTAL PRACTICE VALUATION AND ASSOCIATESHIP ARRANGEMENTS

by James B. Jackson
and
Roger K. Hill

1987, Quintessence Publishing Co., Inc.,
Chicago
258 pages

This well written, soft cover book addresses the following questions:
(i) how do you determine the value and
(ii) how should you structure the transfer of ownership, of either an entire practice or a partial interest in a dental practice? In addition, the advantages, disadvantages, and economics of associateships are discussed. With dental practice values escalating dramatically over the past fifteen years, and with no previous book

(that I am aware of) dedicated solely to dental practice valuation, this book fills a definite need in the dental literature.

Those regularly involved in professional practice appraisals and/or sales will find this book very useful because the authors take a very logical, disciplined approach to practice valuation, drawing on appraisal techniques used in valuing other small businesses. Very useful concepts such as present value of future cash flows and capitalization of earnings are discussed extensively. Although the authors state that this book is a valuable reference for every dentist and for every financial, accounting, and legal advisor to the dental profession — the average, wet-fingered dentist may find this book a little "heavy".

Dr. Jackson and Mr. Hill review most of the commonly used practice valuation techniques, including many of the popular "rules of thumb". But they show a definite preference for the capitalization of income approach and the excess earnings approach. These approaches have the basic premise that an investment in a dental practice should produce a fair return on invested capital in addition to the dentist's remuneration for his/her time, skill, and judgement.

For those who are not experts in dental economics and finance, the authors do explain, in an easy to understand manner, the logic and mathematics behind each of the valuation approaches. Also, a glossary of technical terms is included at the back of the book. Therefore, all readers who have an interest in dental practice valuation and associateships can understand the concepts presented in this book. Case studies are also presented. This helps to clarify the valuation techniques described.

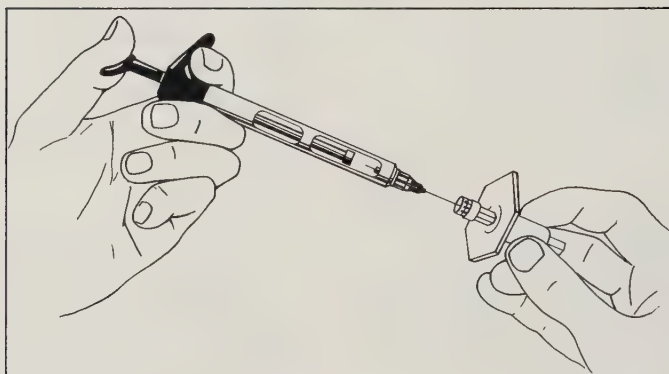
Some of the legal references and income tax rulings presented in the book are based on United States cases, and Canadian law is different in some respects. Also, the presented sample legal documentation for a practice sale is fashioned to accommodate United States law and may not be suitable for a practice sale in Canada. However, these American references do not detract significantly from the book's considerable value to interested Canadian readers.

In summary, this is not a book for the casual reader. It is, however, an extremely useful book for: (i) professionals involved in dental practice valuation and/or sales, (ii) dental practice management educators, and (iii) interested

NEEDLE STICK INJURIES A RISK OF SERIOUS INFECTION TRANSMISSION.

Now, Hoechst introduces
simple, effective protection

Uniject® NEEDLE GUARDS



Easy to use
Uniject Needle Guards, for use with
Uniject Disposable Dental Needles.

Uniject® NEEDLE GUARDS BECAUSE THE RISK IS SERIOUS

 Hoechst and ®, Reg. Trademarks
of Hoechst AG, Germany (West)

Hoechst 
Hoechst Canada Inc., Montreal H4R 1R6

dentists who are considering the sale of a practice, the purchase of a practice, or the addition of an associate dentist. Δ

This book was reviewed by:
H. Jack Stockton, DMD, CFP
Course Coordinator, Practice Management,
Faculty of Dentistry
University of Manitoba

A PRACTICAL GUIDE TO HOSPITAL DENTAL PRACTICE

P.B. Lockhart, DDS (Principal
Editor)

S.F. Connolly, DMD

K.P. Sargent, MD

S.T. Sonis, DMD, DMSc

*Published by Medical Area Service
Corporation (MASCO) Copy Centre
221 Longwood Ave.
Boston, Massachusetts 02115
November 1985*

Obviously intended as a ready-reference text, this soft-covered, pocket-sized text of 239 pages is not meant to be read from cover to cover. This publication could best be described as a manual or guide-book, mainly consisting of point-form references and tables.

A readily accessible table of contents on the inside of the front cover facilitates quick access to specific information.

This book would be valuable to any dentist involved in provision of patient care in a hospital setting, particularly when there is a lack of hospital experience. It would be a useful tool for dental internes and residents and could provide much of the core material for the preparation of a policy and procedures manual for a hospital dental service or educational program.

A word of caution is issued to Canadian readers of this text. As this is an American publication, there are some variations from Canadian standards. In particular, references to organization of administration, accreditation processes and standards, and drug formularies may contain information that is significantly different from Canadian norms. Since these matters may be subject to considerable local variation it would be wise to check local policies concerning these subjects. The editor makes an opening admonishment in this regard. However, these variations do not seriously impair the value of this textbook.

Of particular usefulness are the chapters which deal with hospital protocol and

medical record maintenance. These are areas of hospital practice that stymie even the most competent clinicians who are inexperienced with hospital procedures. As well, chapters concerning in-patient care; out-patient care; consultations; fluid and electrolyte therapy; charts, tables and treatment protocols and laboratory diagnosis, are concise, informative and can quickly provide answers to specific questions.

The sections of this reference book that deal with dental and medical emergencies are by the nature of the format of the publication, very basic and oversimplified. Information contained within these portions of the text is knowledge that every qualified dentist should have mastered and be able to draw upon immediately, from memory, in greater detail than provided in this book. For example: management of foreign body obstruction of the airway, and diagnosis of acute peri-apical disease are two of many such topics. The impression is that the editor

included these sections for the sake of producing a reference book that would be perceived to be complete. Although these are important topics, the minimal attention that can be allotted to them in a publication such as this one leads the reader to the conclusion that these portions are more padding than substance. The overall quality of the manual would be improved if they were not included.

Nonetheless, this handbook fills a gap in the reference material available in the realm of hospital dentistry. It is a worthwhile investment for any dentist new to the field of hospital dentistry and is particularly recommended to directors of dental educational and service programs in hospitals and similar types of institutions. Δ

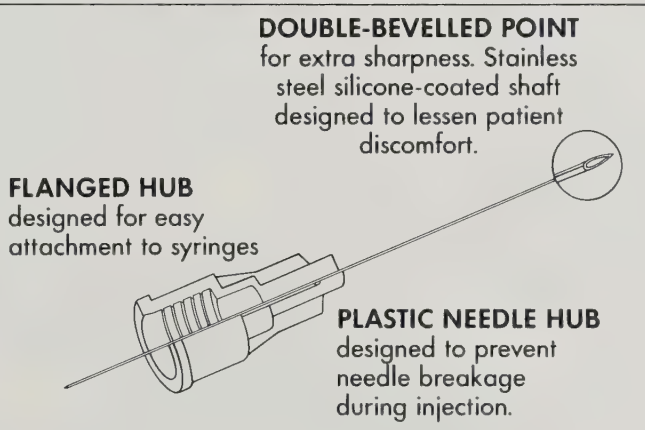
This book was reviewed by:
Ron Boyar, DMD, MSc
Director, Hospital Dentistry
University of Manitoba
Director, Dental Internships
Health Sciences Centre, Winnipeg, Manitoba

**ALL THE NEEDLES
YOU'LL EVER NEED...**

Uniject[®]

sterile, non-toxic, non-pyrogenic
disposable dental needles

**WITH ALL THE FEATURES
YOU'LL EVER NEED**



 Hoechst and $\text{\textcircled{H}}$ Reg. Trademarks
of Hoechst AG, Germany (West)

Hoechst 
Hoechst Canada Inc., Montreal H4R 1R6

ORABASE

Orabase

Oral protective paste



A unique paste for fast, temporary relief of:

- canker pain
- sore spots from new dentures
- toothbrush injuries
- gingivitis
- and other traumatic lesions of the mouth

- protective emollient composed of gelatin, pectin and sodium carboxymethylcellulose in plastibase
- hygroscopic principle, taking up and retaining water
- non-medicated; no antibiotics, analgesics, anesthetics
- non-toxic, tasteless, odourless
- available in safety-sealed 7.5 g tubes

Not intended for use in presence of infection

To order this product, please consult your local pharmacist.



SQUIBB

Quality products
for quality care

PAAB

DENTISTRY BEHIND THE WALLS

*Dr. Gary MacDonald**
Mount Pearl, Newfoundland

The formal introduction of dental care for inmates at Canada's federal institutions took place in 1922. Each penitentiary was provided with a "properly" equipped dental unit, and dental treatment was extended to cover fillings in defective teeth instead of the previous practice of extraction by the penitentiary physicians, of all problem teeth.

In the early years of this new dental policy, only a minority of convicts benefited. In 1923, an average of three to four cases per week were treated at the Kingston Penitentiary in Ontario and at the St. Vincent de Paul Penitentiary in Québec, which had convict populations of 729 and 625, respectively. These convicts first had to pass the scrutiny of the penitentiary physician before the dentist would see them on his next visit, which depended on the demand for his services.

Local dentists, chosen by the penitentiary wardens, were employed to do the dental work, provided the dentist supplied his own dental materials.

Convicts were supplied with tooth cleanser which consisted of camphorated chalk mixed with salt, prior to use.

Until 1922, the onus of paying for dental treatment was primarily upon the convict. If the convict did not have funds in trust at the institution or friends who would pay, the government would bear the cost, subject to the approval of the Superintendent of Penitentiaries.

Despite the care taken to minimize the cost of dental care for convicts, paid for by the Department of Justice, it eventually got out of hand. In the fiscal year 1925-26, \$3,111.00 was spent; by 1930, it had more than tripled, to \$10,500.00. With the onset of the Depression years of the 1930s, this escalating cost could not be tolerated and

accordingly, in 1931, dentists and physicians were urged to cut expenditures as much as possible. The medical officer was encouraged, in the interest of cost cutting, to only certify the dental work deemed necessary.

The rules and regulations which evolved at this time set the standard for penitentiary dentistry for many years. Even in the 1960s, the regulation still prevailed that inmates only be provided with a "good biting and grinding surface" sufficient for eating the prison dietary fare. Not until the mid 1970s would a more comprehensive approach to dental treatment be adopted in the Canadian Penitentiary system.

In 1933, a directive on dental care, together with a fee schedule, was issued, which stated that the convict was to be provided with the "good biting and grinding surface". The new order made it clear that "a good grinding surface" on one side of the mouth only, was sufficient for mastication. Gold fillings, crowns, bridges and any expensive appliances were not to be supplied at public expense.

Subsequent investigation following the October, 1932 riot at Kingston Penitentiary heard many complaints about the dental care.

The inmates' complaints produced results; two weeks after the riot, the quality of the dentists' work improved markedly.

As part of the cost constraints, dental laboratories were established at the Kingston Penitentiary and at the St. Vincent de Paul Penitentiary, following the appointment of part-time dental officers to these institutions. Convicts were trained and supervised by the part-time dentist, in the fabrication of dentures.

The work of early penitentiary dentists

was important and pioneering. A great many of the convicts required dental care at the time of reception into the penitentiary. In November, 1936, Dr. L.P. Millan, the dentist at Kingston Penitentiary, reported to the Warden that 89 per cent of the 270 convicts examined over the previous six months, required dental treatment. Most of the middle-aged convicts had never had dental care, and their teeth were in such disrepair they required extractions and the supplying of dentures. Dr. Millan was very proud of the progressive work being done at Kingston Penitentiary.

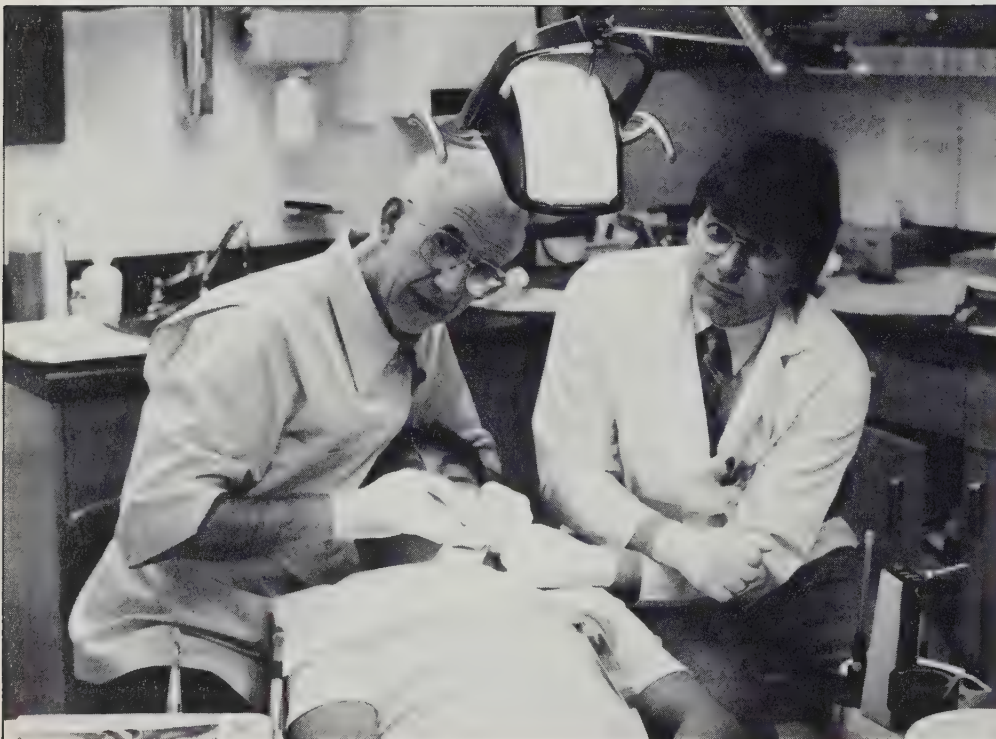
"I do not know of any institution on this Continent or elsewhere, that provides such a complete dental service for its inmates as we do at Kingston Penitentiary. At this institution a convict is examined and given treatment within 30 days after he is admitted; all fillings and extractions attended to and he is supplied with dentures where necessary".

In early 1952, part-time salaried dentists were appointed at Dorchester and British Columbia Penitentiaries. By March of 1956, all the penitentiary dentists were employed on the same basis. In early 1961, the Department of Justice decided to establish new dental laboratories at Manitoba and British Columbia penitentiaries to supplement the laboratories at Kingston and St. Vincent de Paul.

The National Health Services Advisory Committee formed in 1973 to advise on the complete upgrading of the provision of health services to inmates in our federal prisons, pointed to dental services to inmates as one of its major areas of concern in its first report to the Solicitor General. The report pointed out that the incidence of dental disease among inmates was very high, probably due to very few inmates having previous dental



Stoney Mountain Penitentiary, north of Winnipeg, Manitoba.



Dental treatment being rendered at the Regional Psychiatric Treatment Centre in Saskatoon, Saskatchewan. Providing the treatment is Dr. Ernest Ambrose, left, former Dean of Dentistry, at the University of Saskatchewan.

care. Penitentiary dental services were badly in need of reform, a situation not regarded as surprising because only since the start of the 1970s had dentistry generally been regarded as an important aspect of the inmate's total medical picture. Dentists were carrying a heavy workload — to the point of being overwhelmed. Aging or obsolete equipment, located in inadequate quarters, was common. Lack of dental assistants, no x-ray facilities; inadequate dental histories and

lack of security for dentists helped produce a low level of morale among penitentiary dentists. The situation was worsened by the fact that dentists had trouble communicating with the Penitentiary Service about their professional needs, because the latter was not familiar with the aims and teachings of modern dentistry. In the early 1970s a number of young dentists, who were recent graduates, joined the Penitentiary Service, and they were not content to accept out-

dated dental equipment and practices.

The National Health Services Advisory Committee, with advice from these new dental graduates and direction and expertise from its dental member, Dr. John Calligham, formulated the basis of present dental care policy in Correctional Services.

The inmates, like others in the 1970s and 1980s became more conscious of good medical and health care practices, and began demanding them. Dentists were also calling for a different approach to treatment; the emphasis was on prevention instead of simply pain control. The guidelines followed by dentists working for Correctional Services stressed preventive care, operative dentistry and periodontal treatment. Inmates are now seen regularly by dentists and a dental check-up, following initial examination on reception into the penitentiary system, forms an integral part of the health care system. Aging or obsolete equipment has been replaced and dentists now have their own dental assistants accompanying them into the institutions.

The Penitentiary Act and the Penitentiary Service Regulations are the legal basis for the dental services rendered to inmates. The Regulations state that: "Every inmate shall be provided with essential medical and dental care".

The dental care provided in the correctional institutions is outlined in the Policy and Procedure Manual for Medical and Health Care Services. It is stated that:

- The dentist in his professional role shall diagnose and treat dental conditions, implement programs to promote oral hygiene and prevent dental deterioration, and to supervise the activities of other members of the dental team;
- Emergency dental care shall be available at all times when needed for relief of pain, acute infection, hemorrhage and any dental or oral condition affecting immediate safety or comfort;
- Teeth shall be restored to functional and aesthetic acceptability using standard restorative materials. If, in the clinical judgement of the dentist, restorations using gold or other precious metals are required, the dentist must prepare a request including details as to why standard materials cannot be used. This request is dealt with by the Regional Manager — Health Care Services;
- Periodontal treatment shall be given when required but the inmate's motivation and responsibility in assuming good oral health care shall be a factor to be considered before periodontal treatment is undertaken;
- Endodontic treatment shall be available for anterior and bicuspid teeth where

it will prevent the first break in a quadrant or avoid the necessity of providing a prosthetic appliance;

- Minor surgical preparation of the mouth, for insertion of dentures and surgical and adjunctive treatment of minor pathological conditions shall be performed as required in the dental clinic of the Health Care Centre;
- Removal of asymptomatic impacted or unerupted third molar teeth shall be discouraged except for the young offender serving a long period of incarceration;
- Those inmates requiring outside hospitalization for health reasons shall be referred to the dental department of the local hospital;
- Preventive dental care shall be provided with specific local preventive procedures prescribed by the dentist as required;
- Denture wearers shall be provided with cleanser, adhesives, brushes and receptacles as necessary, and. . . .
- Dental prostheses and appliances shall be provided when the health of the inmate otherwise would be affected adversely, as determined by the dentist responsible.

Presently, 32 federal institutions have dental clinics or dental treatment areas — all equipped with a dental chair and x-ray unit and necessary equipment to provide the dental services required.

The majority of dental services to Correctional Services is provided on a part-time basis under various contractual arrangements. This varies according to the hours worked, services provided, location of the institution from the dentist's office, whether the dentist works with or without an assistant, and other local factors. Dental hygienists have a very limited role in providing services to Correctional Services; the Regional Psychiatric Centre in the Prairies is the only institution that employs a dental hygienist.

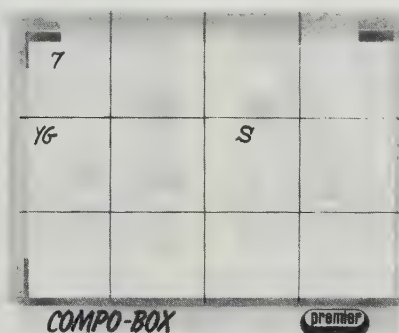
Complaints from inmates over the past five years with respect to the dental facilities and treatment provided, are very minimal. This fact alone says something for the quality of treatment received and the availability of dental services at our correctional institutions.

The dentists providing services to the Correctional Services of Canada must be commended for their commitment and dedication in providing high quality treatment to patients in an environment not as peaceful and harmonious as most of us are accustomed to. △

* Dr. MacDonald is CDA's representative to the Canadian Correctional Services. He is also Executive Secretary of the Newfoundland Dental Association.

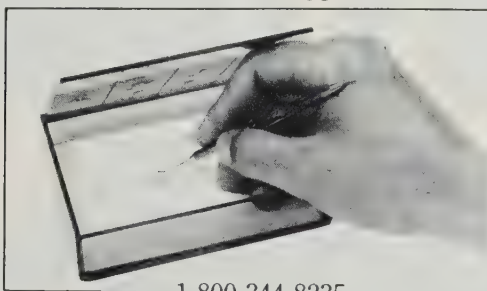
Efficiently Organize and Prevent Premature Setting of Light Cured Materials

New! **premier**
COMPO-BOX
For Use With Light Cured Materials



PREMIER COMPO-BOX will save you time and money. It stores and organizes up to 12 different materials—including custom blended shades and preloaded veneers—without fear of setting. You can see inside but wavelengths in the curing range are successfully filtered out. PREMIER COMPO-BOX is sterilizable in cold solutions.

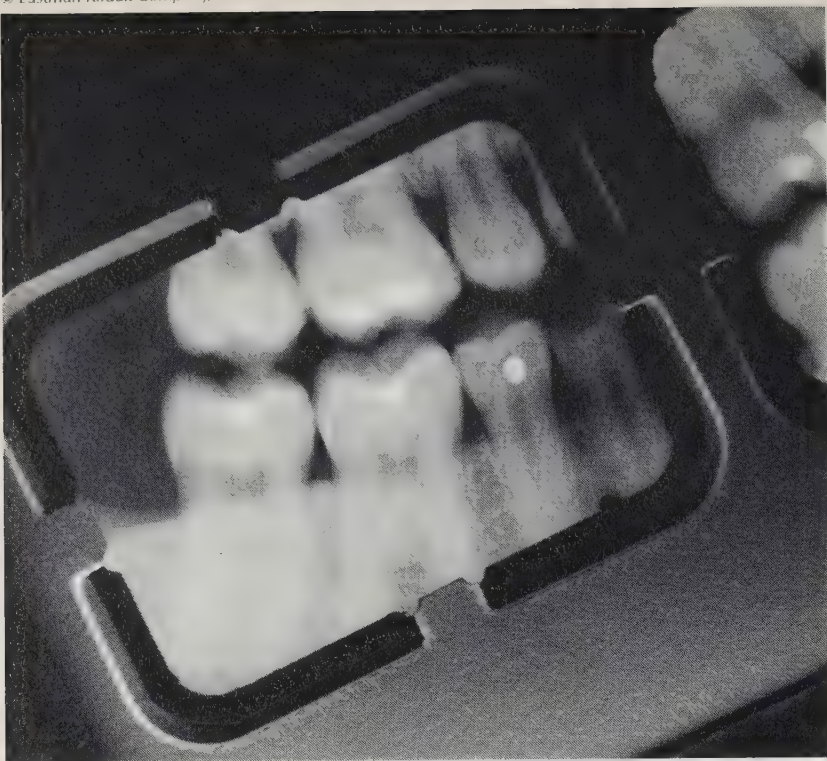
Order the PREMIER COMPO-BOX through your dealer. It comes complete with a mixing pad and marking instrument to identify contents on lid.



1-800-344-8235

Premier Dental Products Co., Box 111, Norristown, PA 19404-USA
Premier Dental (Canada) Inc., Scarborough, Ont. M1W 3K5 CANADA

Copyright 1986—Premier Dental Created by Dr. Bruce A. Singer Patent Pending



Intraoral or extraoral, the products and people you can count on come from Kodak. Why take a chance on anything less?

Ever since there were dental x-rays, the products you could count on for quality came in a yellow box. It's still that way today, and you know it'll be that way tomorrow as well. And if you do have a problem, your dealer in Kodak products is nearby, ready, willing and able to help. There's even a toll-free phone line direct to Kodak's own dental x-ray experts: call 1-800-465-6325, ext. 5147 (or, in Toronto, 766-8233, ext. 5147). Kodak dental x-ray products. Anything less is taking a chance.

**DON'T
TAKE CHANCES
WITH YOUR
PICTURES.
KODAK**

The new vision of Kodak



PRACTICE PROFILING

Brian N. Rocky, BSc, DMD*
Vancouver, B.C.

The development of practice profiles has been a matter of policy for the College of Dental Surgeons of British Columbia for several years. A practice profile may best be described as a collection of statistical data concerning the dental services that have been delivered by a practitioner, and that data being reviewed under a format that compares the frequency of delivery of those services in comparison to other practitioners.

The existing profiling program and format has been an evolutionary process that was started some nine years ago. At that time, there was a government funded Dental Care Plan of B.C. providing public funds for the delivery of dental services for different groups of persons. One of those groups included virtually the entire paediatric population in the province. This dental plan was brought into place by participation and consultation between the government and the College. It was agreed that as public funds were involved in the funding of such a program, a system would be developed that would enable the profession and government to review where funds were being disbursed. A Monitoring Committee was developed, consisting of dentists as representatives of the College and government representatives from the dental plan. This committee met on a regular basis to review information being generated from dental claims submitted to the plan. The original format of information requested and generated was based on a similar type of monitoring system in place for many years through the medical services plan and the physicians in the province. The essence of the program was to identify "statistical exceptions" within practices as they related to services rendered or paid for, and that information would then be reviewed by the Committee.

Upon the demise of the plan, the College continued the process of developing practice profiles. This was in response to a then recent formal disciplinary procedure of a Court of Inquiry concerning what has been phrased as "creative billing". A third party dental plan provided information to the College whereby our Profes-



Brian N. Rocky, BSc, DMD

sional Review Committee was of the opinion that there was an unusual pattern of billing practice concerning excessive quantities of scaling, root planing, gingival curettage, and pulp capping. Due to the nature of these services, it was difficult for the committee members to determine exactly whether the services had been performed or whether they had not been performed but had been billed and reimbursed. In order to develop statistical information for comparison purposes concerning treatment rendered by the dentist in question and the average practitioner, the third party was requested to provide the College certain statistical information which was analyzed by an independent consultant in statistics.

At the same time, the College became aware of an RCMP Commercial Crime Section investigation of billings submitted by a dentist which may have been deliberately misleading and which resulted in a variety of criminal charges laid against the dentist involved. Much of the information presented in Court was further statistical analyses of services performed or billed for, in comparison to average or similar practitioners in similar circumstances. Again, the College was involved in the collection and interpretation of such data. The dentist in question was ultimately convicted on a variety of the

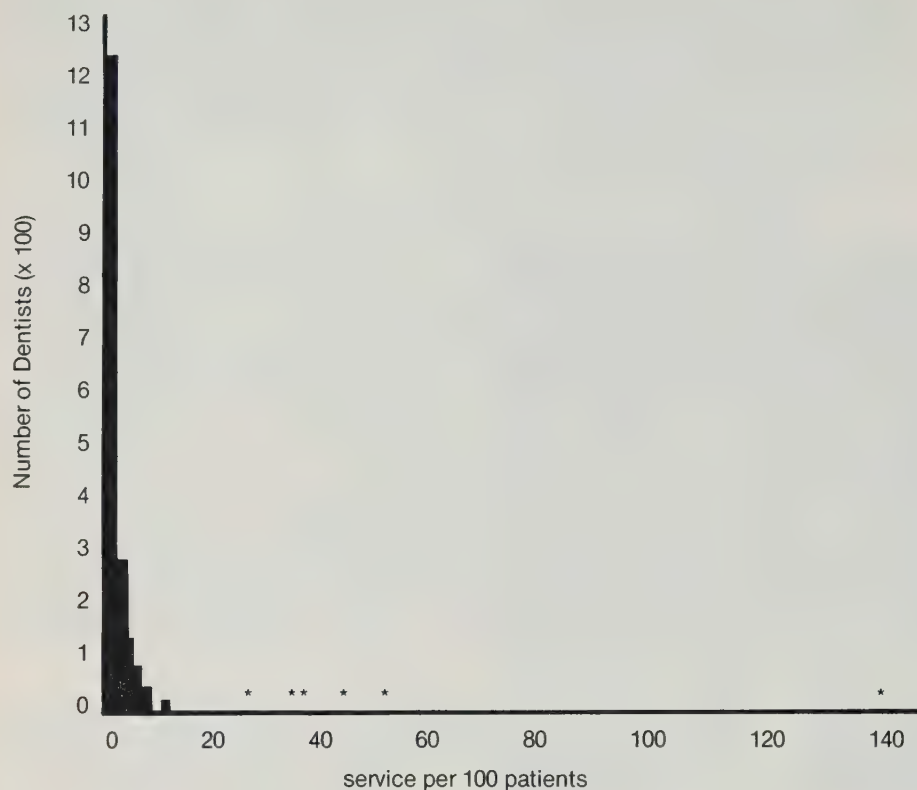
criminal charges, and was sentenced to jail. (He removed himself from our register prior to our proceeding with a formal Court of Inquiry over those matters.)

In the process of reviewing the incidents referred to above, it became apparent that a great deal of data concerning dental practices, including such information as procedures done, the number of each procedure, the number of patients treated, etc. was being held in computer data banks of third party carriers. This material was used in our investigations and submitted as evidence in Courts of Inquiry. As an example of the material that is reviewed by this office in such situations, in the Court of Inquiry first mentioned, there was an indication that the dentist was billing for procedures that he was not doing. The examples were:

- a) *the dentist billed for extraordinary numbers of particular procedures. For example, he billed for more units of gingival curettage than the total number of units by 100 of the other dentists reviewed.*
- b) *When such items as pulp caps, radiographs, root planing, two surface restorations, etc. were looked at and the dentist was compared to 100 other dentists as a comparison group, 90 per cent or more of the comparison group dentists grouped in a very narrow range. That is, almost all dentists bill for roughly the same number of units on a per patient basis of various services. For example, on analyzing pulp caps, the mean (average) of 100 dentists was 12 pulp caps per 100 patients, while the dentist under investigation did 134 pulp caps per 100 patients. (Graph 1) This pattern was repeated for many other services such as those listed above. When the dentist was confronted with these facts, he admitted to wrongful and deliberate overbilling of the dental insurance company for services which he did not render.*

As a result of that particular investigation, the dentist's legal advisor entered into an Agreed Statement of Facts with the College, which indicated that the dentist pleaded guilty to a variety of charges

Fee Guide Item 31100 — Pulp Cap



* — represents single practitioner

against him. This resulted in his suspension from the College, reimbursement of improperly acquired fees, reimbursement of all College costs, etc.

It was also noted, in this particular case, that the dentist appeared to bill much more frequently for a number of different services, and particularly those services difficult or impossible to assess as to whether or not they had actually been carried out, subsequent to the billing. It is difficult for the examiners of a Professional Review Committee to examine a patient and determine how many units of scaling, root planing, gingival curettage, or occlusal adjustment have been carried out, after the fact. Also it is difficult for any committee of dentists to determine whether or not a pulp cap truly is present under a filling, or whether it is merely a base for pulp protection.

In general, the generation and interpretation of data can be best performed by computer assessment of data, comparing each dentist to what the average dentist does. Most dentists group very closely together when looking at their treatment patterns over a long period of time. Where a dentist is identified as being statistically exceptional, there is frequently a reasonable and logical reason for the exception. Where a dentist is

exceptional in a number of procedures, explanations are requested and required as to why the dentist should deviate from the average practitioner in numerous different categories.

We have had occasions arise where a dentist has been unusual in a certain procedure but on being asked for a reason, a logical one was forthcoming. As an example, a dentist was found to be very high in the relative number of endodontic treatments provided. However, he was able to provide the information that he accepts referrals in his particular community for endodontic care, and hence, does more endodontics than the average general practitioner in the community or province.

Over the last few years, the College has continued to develop the profiling process and has gone to the extent of developing its own individual computer program. We are now requesting all third party carriers to provide data so we are able to acquire consistent information between carriers. It does appear that the majority of these carriers are willing to co-operate with the College and participate in such a program as it is seen as an effort to protect the public from inappropriate billings. It is also considered to protect the profession from those very few colleagues who wish

to implicate the profession as a whole by their actions. The College has consistently maintained and promoted the aspect that any analysis — statistical or otherwise — of practices that is to occur, is to be done by the College, because we have the professional expertise to properly review practice patterns to the best interest of the public, the patient, the profession, and the dental insurance industry. The College is of the opinion that it is better to have the profession reviewing and managing these problems as they arise, as opposed to lay persons with outside interests and pressures. In addition, the customary expertise of third party dental consultants is not sufficient for these matters to be adequately addressed by such consultants.

The overwhelming message returned to our governing Council and College, when these issues have been raised, is that once informed regarding the practice profiling mechanism, the practitioners have been entirely supportive of the mechanism of practice profiles.

The computer program on practice profiling that has been developed is based on data analysis on criteria such as:

- number of service items delivered per patient;
- number of any individual service items delivered per patient;
- costs per service item rendered;
- cost per patient of services delivered;
- percentage of patients receiving any particular service;
- analysis of other similar parameters, etc.

A comparison is made of individual practitioners to the average or mean for practitioners within the province and/or their geographical location. In that way, dentists in non-urban areas are not necessarily compared to their urban counterparts. In addition, specialists are compared to specialists. The statistical analysis is based on the mean plus two standard deviations. The vast majority of profiles will not in any way be of interest to the College as they will not indicate any aberrant practice. Therefore, the computer is programmed to print and code Exceptions Reports which will list those dentists who deviate from more than two standard deviations, which represents roughly the ninety-fifth percentile. In other words, the exceptions report will include those dentists who bill for more of any individual procedure than 95 per cent of the other dentists in the province.

For the items that show up as exceptional for any dentist, an initial review of that information is performed by myself.

A dentist may be contacted and provided the statistical information, with a request for clarification or explanation as to any possible concerns. Customarily, most identified concerns are resolved at that stage. If there continues to be a concern, or insufficient information is forthcoming from the dentist, the Professional Review Committee would then examine the unusual profiles to determine why they are different from the majority of other practices. If there is no apparent reason for the unusual practice, as determined by the committee's review, it is the committee's responsibility to obtain an explanation from the dentist concerned, and other persons if necessary. As stated previously, there are reasons why dentists may be unusual in their pattern of practice, such as receiving referrals for endodontics or paediatric patients, or other reasons. Such information is reviewed by the Professional Review Committee and recommendations to this office are made, possibly including formal disciplinary proceedings.

During the Review Committee process, to determine accuracy and validity of claims, the Committee members may review charts, radiographs, and if necessary perform patient examinations. Such examinations are performed on a random sampling of patients of the dentist in an attempt to eliminate any possible bias. Such reviews can either confirm or remove any concern for Review Committee members or the College. It is interesting to note that in a more recent Court of Inquiry, the dentist was originally identified through the profiling mechanism. The practitioner met with the review committee to discuss the profiling results and to determine any rationale for them. The committee members were dissatisfied with the explanations offered by the dentist and held a patient examination review. At that time the committee members were astounded at the information they determined in that they identified a vast array of the clinical practice of the practitioner was based on improper and fraudulent billing. The practitioner requested a further review of patients as he had a concern that there had been bias on the patient selection of the first review. At the second review, several members of the Review Committee were changed, in addition to the committee examining not only a further random sample of patients but also patients personally selected by the dentist as being representative of his practice. Unfortunately, the second review confirmed the findings of the first Review Committee, in that there were virtually few if any

patients that had not been treated by the dentist whereby the billings were inaccurate and improper. A formal Court of Inquiry was convened, and the dentist was removed from the Register.

A dentist's practice profile is available for his confidential information. Each initial profile is done on a calendar year basis, and if several years of profiles are reviewed, a wealth of practice management data is available. The profile provides a listing of each fee code item, the number of times such a service has been billed, the number of patients that each service has been billed for and a comparison between the individual's practice and the province as to services performed. In addition, financial information is available as to the total amount of third party billings, amount per service and per group of services (eg. occlusal amalgam and all amalgams), amount of billings on age groupings, etc. A financial ranking is provided between an individual and all dentists in the province, for comparative persons.

The College also sees profiles as being valuable in identifying the other end of the spectrum of "under-servicing". It is possible to identify practitioners who do not apparently perform any of a group of services, such as periodontal care. Further investigation in this phenomenon may reveal that the practitioner performs the service, but does not bill for it. Alternatively, patients requiring such services may be referred to another practitioner. Discussions with the dentist can result in his understanding of contemporary practice and the services that are customarily provided to patients in the community.

The practice profiling mechanism only provides an instrument in which to consider a variety of statistical data so as to compare one practitioner to a group of practitioners. It may help identify a concern that must then be reviewed by the licensing body. However, all such information must be verified through considerable follow-up such as interviews with the dentist, individual patient examination and intensive radiographic review, to name but a few. By itself, the practice profile is insufficient to make determinations against any practitioner. Due to the detailed follow-up required, this can only be properly performed by the profession through its licensing bodies, and not by any other reviewers or outside interests. The profession will then continue to meet its responsibilities to the public and its members. Δ

* Dr. Rocky is Registrar of the College of Dental Surgeons of British Columbia.

SÉMINAIRE SUR LES QUESTIONS FISCALES

LE 20 JANVIER 1989
DE 8h30 À 16h30

À
MONCTON
(NOUVEAU BRUNSWICK)

En 1987, le gouvernement a présenté des livres blancs dans lesquels on fait des propositions en vue d'une réforme touchant l'impôt sur le revenu et la taxe de vente. Le Séminaire sur les questions fiscales portera sur les conséquences connues et anticipées de cette réforme pour le praticien dentaire.

**Pour vous assurer une place,
inscrivez-vous dès maintenant!**

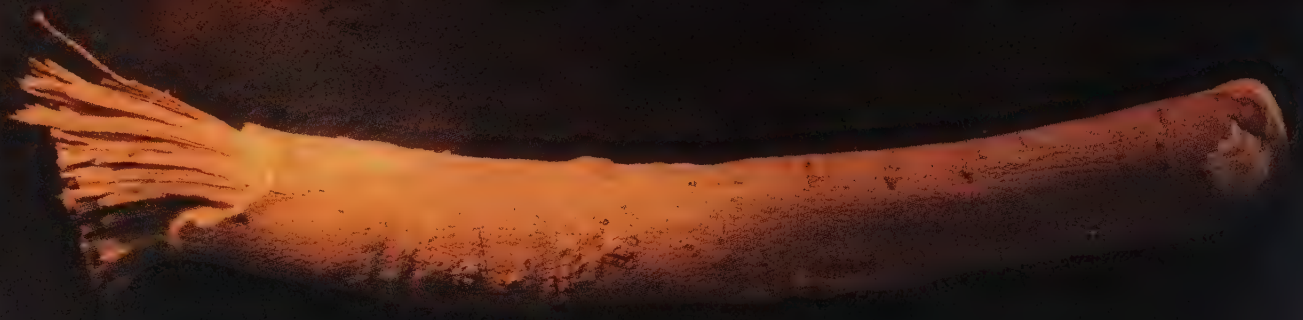
L'inscription par téléphone sera acceptée avec la carte Visa ou MasterCard.

Composer le: 1-800-267-6364

L'Est du Canada sauf l'indicatif régional 709
ou 1-800-267-6354

L'Ouest du Canada et l'indicatif régional 709
OU

Voir la demande d'inscription à la page 851.

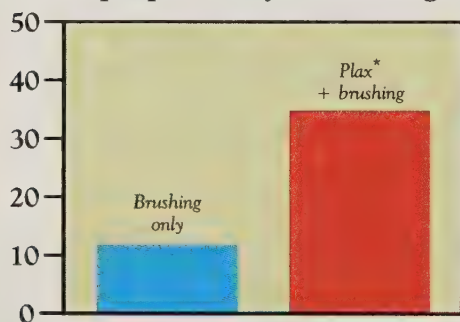


An archaic Middle Eastern toothbrush,
the siwak (or misswak) is made from a water-soaked twig of the Salvadora persica tree.
The siwak's inherent benefits to the teeth and gums were first recognized by
Muhammad who decreed its ritual use to all Muslims.

Introducing Plax*. The greatest advance in home dental care since the *siwak*.

The age-old problem of plaque removal has a new solution. Plax*. The only dental rinse designed specifically to *remove* plaque.

Removes 3 times more plaque than just brushing.¹



In hard-to-brush areas, the improvement over regular brushing was even more dramatic with Plax*.¹

**Formulated
from trusted ingredients.**

Plax* is considered to be exceptionally safe even in "exaggerated use" circumstances.² When test subjects greatly exceeded its recommended use,[†] there were no signs of tissue sensitivity or damage to tooth enamel.²

**Recommend Plax*
and encourage compliance.**

Pleasant-tasting and convenient, Plax* is easily incorporated into your patients' daily oral health care regimen.

For best results, patients should rinse with 1 tablespoon (15 mL) of Plax* for 30 seconds *before* brushing with their regular dentifrice.

New Plax*. The anti-plaque, pre-brushing rinse that is making dental history.



**Checks Plaque
Between Checkups.**

Why isn't the Hepatitis B vaccine being used?

J. Hardie, BDS, MSc, FRCD(C)
Ottawa

Introduction

Hepatitis B is a serious infectious disease which may be acquired during dental treatment. Vaccination against Hepatitis B is the most effective preventive technique and when combined with recommended infection control procedures will dramatically reduce the potential for transmission. Recent studies suggest that health care workers, who are at high risk of acquiring Hepatitis B infection from their working environment, have not uniformly accepted or obtained the Hepatitis B vaccine. An understanding of why this reluctance is present may improve the rate of compliance among dentists and their office staff.

Utilization

Prior to discussing why dentists have not been vaccinated, it is pertinent to know what percentage have been immunized. In 1983, approximately 17 per cent of dentists in the United States had received the Hepatitis B vaccine,¹ rising to 36 per cent in 1985, and 44 per cent in 1986.^{1,2} According to unpublished data obtained by the Canadian Dental Association,³ 25 per cent of the dentists responding to a 1985 health survey had been vaccinated. According to a 1986 U.K. survey, 32 per cent of responding dentists had been or were being vaccinated.⁴ The compliance rate among dental hygienists and assistants is not known. It probably approximates 36 per cent which, according to the Centers for Disease Control (unpublished data), was the percentage



Dr. John Hardie

among high risk health care workers in 1987.

These figures demonstrate that it is not unrealistic to assume that less than half of Canadian dentists and their staff have been immunized against Hepatitis B. The factors responsible are numerous but probably include concerns regarding the incidence of Hepatitis B, the infectious nature of the vaccine, side effects of immunization, pre- and post-vaccination blood tests, booster doses, pregnancy, and costs.

Factors

1. Incidence

There may exist the belief that since the vaccine prevents transmission, the disease is on the decline, with no need for personal immunization. In reality the opposite is true.

In the U.S.A. during 1978, the Hepatitis B rate was 6.9 per 100,000 population, which by 1985 had increased to 11.5 per 100,000 population.² Canadian statistics reveal a rate of 7.7 per 100,000 population in 1983, with approximately a four-fold increase in the number of cases reported in 1985 compared to 1975.⁵

Health care workers and the institutionalized disabled account for less than 10 per cent of cases; however it is to these two groups that the vaccine has been promoted.² Unfortunately, no concentrated immunization programs have been directed at homosexuals, intravenous drug abusers and promiscuous heterosexuals, who collectively account for the vast majority of new cases.² Until vaccination is common among such groups there will be no significant decrease in the incidence of Hepatitis B. It is important that dentists appreciate this fact, and not be misled into believing that because a vaccine is available Hepatitis B is no longer a threat.

2. Vaccine

Active immunity against Hepatitis B is achieved by exposing the recipient's immune system to non-infectious but immunologically active Hepatitis B surface antigen (HBsAg). This stimulates the immune system to produce Hepatitis B

surface antibody (HBsAb). Currently, in Canada three such vaccines have been licensed; they are Heptavax-B, Recombivax-HB, and Engerix-B. All are equally effective among healthy individuals. They are given by injection into the deltoid muscle of the upper arm in three doses, i.e., at zero month, one month later and six months after the initial injection. Usually an effective antibody response is present approximately two months after the last injection.

(i) Heptavax-B (manufacturer, Merck, Sharp and Dohme)

This has been available in Canada for approximately five years. It is prepared from the blood of human carriers of Hepatitis B. The manufacturing process deactivates infectious agents in blood. Heptavax-B has proven to be safe, effective, and not an agent for transmitting disease such as AIDS.⁶ However, this vaccine's close association with human blood may be one reason for the concerns and reluctance expressed by some health care workers.

(ii) Recombivax-HB (manufacturer, Merck, Sharp and Dohme)

Recombivax-B has the distinction of being the first genetically engineered vaccine for sale in Canada. It has been available since May 1987.⁷ The vaccine is manufactured by implanting the gene for HBsAg into a yeast cell so that subsequent generations produce, in effect, an infinite supply of HBsAg. Recombivax is not prepared from blood products but from a "clean" laboratory process. Therefore, there is no theoretical risk of transmitting a blood-borne infectious agent by this vaccine.

(iii) Engerix-B (manufacturer, Smith, Kline and French)

In the fall of 1987, Engerix-B became the second genetically engineered vaccine to be licensed in Canada. Its manufacturing process is similar to that of Recombivax-HB.

The genetically engineered vaccines are readily available. Their presence should dispel the concerns of some health-care workers who were reluctant to accept Heptavax B because of a theoretical potential for disease transmission.

3. Side Effects

The more than five years use of Hepatitis B vaccine substantiates the statement that it is not only effective but safe. The side-effects of immunization are minimal, are seen in less than 20 per cent of recipients, and consist of a mild, transient, redness or soreness at the injection site.² The genetically prepared vaccines have similar mild temporary sequelae.

4. Blood Tests

Dentists are among the "high risk" group of health care workers regarding occupational Hepatitis B transmission. Initially there was a belief that dentists (and similar health personnel) should have pre- and post-vaccination blood tests. The rationale was two-fold:

- (i) to detect persons who had developed (through occupational exposure) "natural" antibodies to Hepatitis B, and therefore might not require immunization.
- (ii) to assess that the antibody was at an effective level approximately two months after the last injection.

There was some doubt as to the justification for these blood tests which were considered as unnecessary additions to the cost and procedures associated with vaccination. This ambiguity has been clarified by a recent statement by the Canadian National Advisory Committee on Immunization (NACI). It does not recommend routine pre-vaccination screening of blood for HBsAb, nor does it recommend routine post-vaccination screening to assess the effectiveness of the vaccine.⁶ The reasons given are:

- (i) If the recipient has antibody (HBsAb) from previous exposure to the Hepatitis B virus, the vaccine will act as a harmless booster.
- (ii) The vaccine induces a positive effective antibody level in more than 90 per cent of healthy recipients.⁶

Although pre- and post-vaccination blood screens are not required, this recommendation does not prevent the recipient from having such tests to satisfy individual curiosity. The post-vaccination test may be pertinent among older dentists since the vaccine is slightly less effective in those over 40 years of age.⁶

5. Booster Doses

The uncertainty regarding if and when booster doses are required may be another factor which concerns health personnel. Two recent statements are relevant. The Centers for Disease Control are of the opinion that adults and children with normal immune systems do not require booster doses during the first five years after vaccination.² The NACI recommends that a booster dose of vaccine be given five years after completion of the initial course of immunization to those who continue to be exposed to the Hepatitis B virus.⁶ This would include dentists and their staff who are continuing in active practice. If the initial vaccine was Heptavax-B, the booster dose may be from it or either of the genetically derived vaccines.

6. Pregnancy

A considerable number of female dentists, hygienists, and assistants are of child-bearing age. They have, in conjunction with other health personnel, legitimate concerns regarding the use of the vaccine during pregnancy. Recent studies have resolved this dilemma.

Ideally, all female and male dental personnel should be vaccinated against Hepatitis B prior to commencing clinical training programs. It is preferable for females to be immunized before commencing a pregnancy. However, since the vaccines contain non infectious HBsAg, immunization poses no risk to the pregnant woman nor fetus. The Centers for Disease Control and the NACI agree that pregnancy should not be considered a contraindication for women in high-risk groups who are eligible to receive this vaccine.^{2,6} Female dental workers belong to such a group and should not forego the beneficial effects of the vaccine because of pregnancy. This is particularly important when the following is considered.

It is estimated that 60 per cent of pregnant women who unfortunately acquire an acute Hepatitis B infection at or near the time of delivery will transmit the HBV to their offspring.⁸ This rises to 80-90 per cent among pregnant asymptomatic chronic carriers of HBsAg.⁹ It is a sad fact that 85 per cent of the children so infected will become chronic carriers,⁹ be prone to childhood liver diseases and premature death in early adulthood from liver cirrhosis and cancer.^{9,10} The transmission of HBV to the infant occurs at the time of delivery and may be prevented by immunoprophylaxis. This consists of injecting the newborn with Hepatitis B immunoglobulin followed by an initial dose of the pediatric vaccination protocol.¹¹ The transmission to the child from the mother is prevented if the mother has received the complete vaccination program at least two months prior to delivery. Failing this, NACI and other authorities strongly recommend that all pregnant women should have an HBsAg screening of their blood, preferably during the third trimester.^{6,8,10,11} If it is positive, vaccination of the mother should be initiated and immediate immunoprophylaxis given to the child at birth.¹¹

In addition to the obvious beneficial effects of vaccination prior to pregnancy, female dental personnel should appreciate that according to the Centers for Disease Control, "booster doses need not be withheld from pregnant women who are at ongoing risk of HBV infection."²

7. Costs

The financial implications of vaccination may be a relevant factor. At its introduction, a course of Heptavax-B cost \$130-150. A similar outlay was necessary for Recombivax-HB; however, Engerix-B has been promoted at approximately \$90 per course. This competitive situation may assist in reducing financial concerns.

Summary

Hepatitis B is a serious communicable disease, the transmission of which is effectively prevented by immunization. Nevertheless, for various reasons, the appropriate vaccines have not been universally accepted by health-care workers. The preceding discussion of a number of these concerns illustrates that there is no apparent justification for dental workers to deny themselves the beneficial preventive effects of Hepatitis B vaccination. Δ

Dr. Hardie is chief, Department of Dentistry, Ottawa Civic Hospital, 1053 Carling Ave., Ottawa, Ont. K1Y 4E9.

Reprint requests to Dr. Hardie.

References

1. Siew, C., Gruninger, S.E., Mitchell, E.W. et al. Survey of Hepatitis B exposure and vaccination in volunteer dentists. *JADA* 114:457-459, 1987.
2. C.D.C. Update on Hepatitis B Prevention. Recommendations of the Immunization Practices Advisory Committee. *Ann Int Med* 107:353-357, 1987.
3. Canadian Dental Association, Infection Control Survey, 1985 (unpublished).
4. Matthews, R.W., Scully, C. and Dowell, T.B. Acceptance of Hepatitis B vaccine by general dental practitioners in the United Kingdom. *Br Dent J* 161:371-373, 1986.
5. Epidemiological Reports, Hepatitis B infection in Canada. *CMAJ* 132:817-818, 1985.
6. Statement on immunizing agents for the prevention of hepatitis. *CMAJ* 137:303-307, 1987.
7. Epidemiological Reports. Genetically engineered vaccine now available. *CMAJ* 137:301, 1987.
8. Jonas, M.M., Schiff, E.R., O'Sullivan, M.J. et al. Failure of Centers for Disease Control criteria to identify Hepatitis B infection in a large municipal obstetrical population. *Ann Int Med* 107:335-337, 1987.
9. Stevans, C.E., Neurath, R.A., Beasley, R.P. et al. HBeAg and anti-HBe detection by radioimmunoassay: correlation with vertical transmission of Hepatitis B virus in Taiwan. *J Med Virol* 3:237-241, 1979.
10. Kumar, M.L., Dawson, N.V., McCullough, A.J. et al. Should all pregnant women be screened for Hepatitis B? *Ann Int Med* 107:273-277, 1987.
11. Stevans, C.E. Perinatal Hepatitis B virus infection: Screening of pregnant women and protection of the infant. *Ann Int Med* 107:412-413, 1987.

Neuromuscular Occlusion Seminars

Objective, electronic diagnosis & documentation

The only complete continuing education program in:

- State of the art TMJ/MSD electronic diagnosis
- Role of the muscles in all major dental procedures
- Methods of objective diagnosis & case documentation
- Individualized, precision orthotic (splint) design
- Physiologic function of masticatory muscles

Introductory Seminars

Chicago, IL	Nov. 18-19	Los Angeles, CA	Feb. 10-11
Seattle, WA	Dec. 2-3	Houston, TX	Feb. 17-18
Columbus, OH	Dec. 9-10	Pittsburgh, PA	March 10-11
New York, NY	Jan. 14-15	Orlando, FL	March 17-18
Atlanta, GA	Jan. 20-21	Charlotte, NC	April 7-8

Call for schedule of advanced & specialty courses

AGD, CDA accreditation and course certificates for all programs.

Call for FREE Video Tape: "Muscles in Dentistry"

For details, call 1-800-426-0316.



MYO-TRONICS, INC.

720 Olive Way, Suite 800, Seattle, WA 98101
(WA, AK & Canada call 206-622-2121)



University of Alberta
Edmonton

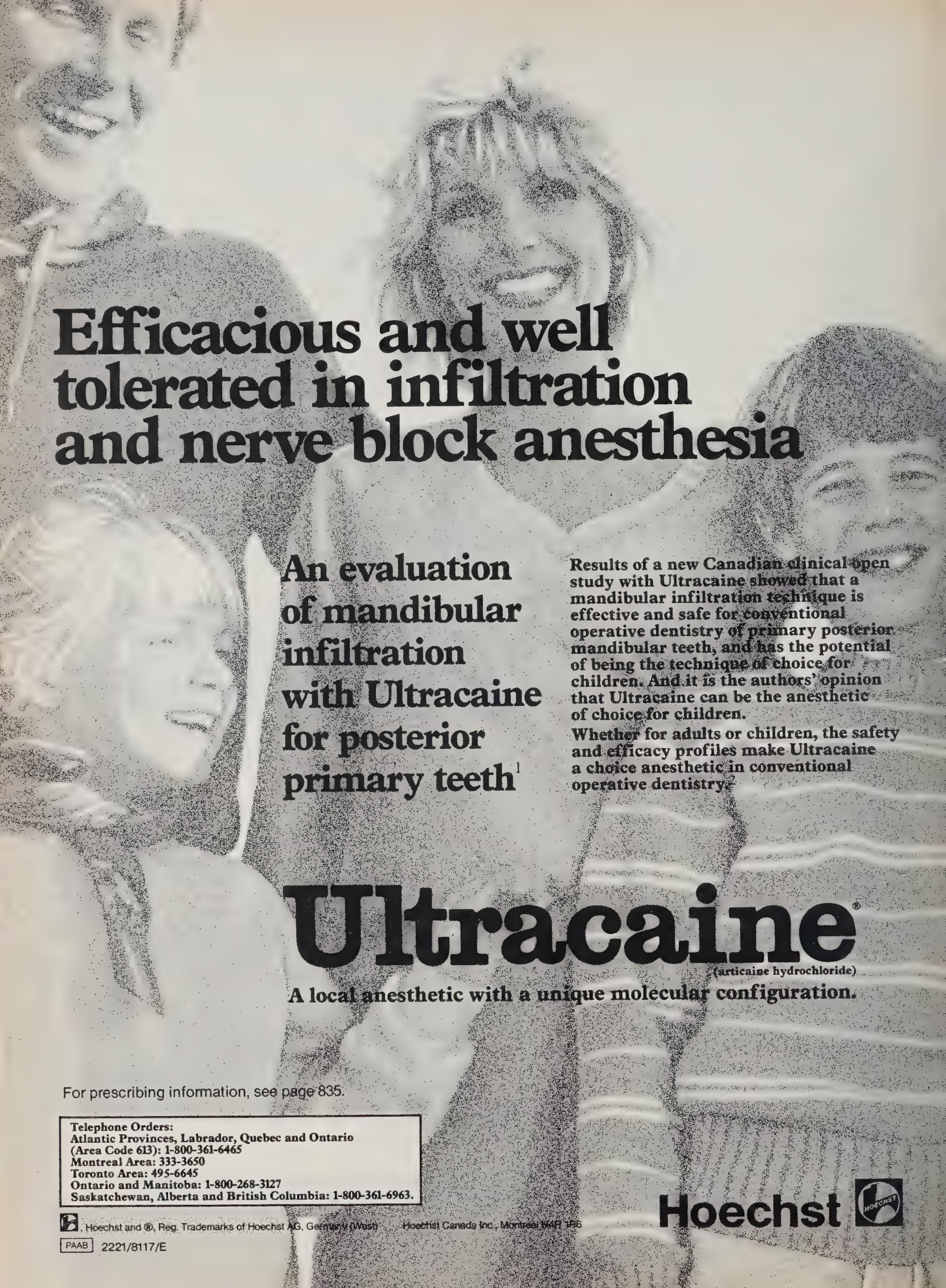
Assistant/Associate Professor Faculty of Dentistry

Applications are invited for a full-time tenure-stream academic position in the Division of Endodontics, Department of Restorative Dentistry. The position will be effective January 1, 1989. Activities include research and teaching undergraduate students. An applicant should be eligible for licensure in the province of Alberta as a specialist in Endodontics. Rank and salary are commensurate with education and experience of an Assistant Professor (\$33,144 - \$47,280) or Associate Professor (\$41,390 - \$59,534). Intramural private practice facilities are available.

In accordance with the Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Send application, including curriculum vitae and the names of three referees, no later than November 30, 1988 to:

Dr. K.W. Hinkelman, Chairman
Department of Restorative Dentistry
University of Alberta
Edmonton, Alberta T6G 2N8

The University of Alberta is committed to the principle of equity in employment.



Efficacious and well tolerated in infiltration and nerve block anesthesia

An evaluation of mandibular infiltration with Ultracaine for posterior primary teeth¹

Results of a new Canadian clinical open study with Ultracaine showed that a mandibular infiltration technique is effective and safe for conventional operative dentistry of primary posterior mandibular teeth, and has the potential of being the technique of choice for children. And it is the authors' opinion that Ultracaine can be the anesthetic of choice for children.

Whether for adults or children, the safety and efficacy profiles make Ultracaine a choice anesthetic in conventional operative dentistry.²

Ultracaine[®]

(articaine hydrochloride)

A local anesthetic with a unique molecular configuration.

For prescribing information, see page 835.

Telephone Orders:
Atlantic Provinces, Labrador, Quebec and Ontario
(Area Code 613): 1-800-361-6465
Montreal Area: 333-3650
Toronto Area: 495-6645
Ontario and Manitoba: 1-800-268-3127
Saskatchewan, Alberta and British Columbia: 1-800-361-6963.



Hoechst and ®, Reg. Trademarks of Hoechst AG, Germany (West) Hoechst Canada Inc., Montreal 1441 136

PAAB 2221/8117/E

Hoechst



AIDS RISK TO DENTAL PERSONNEL: a realistic approach

Tom D. Daley, DDS, MSc, FRCD(C)
London, Ont.

ABSTRACT

Despite overwhelming evidence indicating the rarity of transmission of human immunodeficiency virus (HIV) to health care workers, especially dental personnel, most members of the dental team shudder at the prospect of having to treat AIDS patients. This paper discusses the importance of the unidentified asymptomatic carrier as a transmission risk, the apparent minute risk of oral transmission of the virus and the estimated relative risk of transmission in the dental office compared to the risk of death this year by selected other causes. Appropriate precautions, in view of the extremely low risk of transmission and the seriousness of the disease, are recommended. It is hoped that the information in this paper will help members of the dental team to draw realistic conclusions about treating AIDS patients and HIV carriers.

SOMMAIRE

Malgré les preuves éclatantes que le virus HIV se transmet rarement aux professionnels de la santé — surtout en médecine dentaire — dans leur milieu de travail, la plupart des membres qui composent l'équipe dentaire tremblent à l'idée de devoir traiter un sidatique. Dans cet article, il est question du porteur sain non identifié qui risque de transmettre le virus, du risque minime évident que présente le virus de se transmettre par voie buccale, et du risque relatif qu'on estime qu'il peut avoir de se transmettre au cabinet comparativement au risque de décès cette année procédant de d'autres causes. Compte tenu du risque de transmission extrêmement faible et de la gravité de la maladie, il convient de prendre les précautions appropriées. On espère que les renseignements donnés ici aideront les membres de la profession dentaire à tirer des conclusions réalistes touchant le traitement des sidatiques et des patients séropositifs.

The acquired immunodeficiency syndrome (AIDS) is a devastating new disease which is virtually 100 per cent fatal at the present time. It has received widespread, often sensationalized, media coverage,¹ resulting in a fear approaching a form of hysteria among the general public² and, regrettably, among dental personnel, many of whom are or will be responsible for the dental and oral treatment of affected patients. The fear in the minds of dental workers seems appropriate when major health care organizations^{3,4} recommend stringent infection control procedures, including the draping and redraping of light handles and x-ray unit heads for each patient, to prevent the transmission of the causative agent, human immunodeficiency virus (HIV). As a result, too many dentists and dental hygienists refuse or will refuse to treat patients who are known to have AIDS or to carry HIV. Gerbert⁵ reported that 63 per cent of 297 Californian dentists would not treat patients at high risk of harbouring HIV

and 74 per cent would refer such patients elsewhere. Hardie's⁶ survey of a small group of Canadian dentists revealed that 39 per cent would not provide dental care to AIDS patients and 79 per cent had reservations about treating these individuals.

In personal communications with dentists, dental hygienists, dental assistants and dental students, I have found that the large majority fear the HIV carrier and would prefer not to have to treat him. Indeed, even long-time patients who were found to be carrying HIV have been turned away by their dentists.⁷ There are many reasons given, but the most common is fear for personal health by in-office transmission of the virus from an infected patient to members of the dental team.⁸ This fear is based on an apparent refusal by dental personnel to reach factual conclusions and a preference to follow the consistent and dramatic reporting of the lay press.

The purpose of this paper is:

- 1) to inform dental personnel about the inability to recognize apparently healthy HIV carriers who present a greater risk of HIV transmission than AIDS patients,
- 2) to discuss the risk of oral HIV transmission by saliva and by blood in the dental office, and
- 3) to put this risk into perspective by comparing it to some other risks taken in day to day life.

It is hoped that the members of the dental team will use this information in arriving at a realistic decision with regard to treating AIDS patients and known HIV carriers.

1. HIV Infection

AIDS is the *end stage* of HIV infection. The epidemiology, clinical manifestations and alterations in laboratory tests are well described in several publications.^{9,10} There is no evidence, as yet, to indicate that HIV infection always leads to AIDS. In fact, there exists a pool of asymptomatic HIV carriers estimated to be 50 to 100 times larger than the number of AIDS victims.¹¹ Jessamine stated that 36 per cent of these individuals will develop AIDS within six or seven years,¹¹ but the fate of the remaining 64 per cent is still unknown. It is this larger group of apparently healthy HIV carriers that presents the greatest risk of viral transmission to dental personnel. Evidence is available to indicate that these individuals are more infectious than the terminally ill AIDS patient.^{12,13} Most of these healthy carriers will not have had an HIV antibody test, and most will not give a detailed sexual history to their dentist,

in part because of their fear of being denied dental treatment.⁷ In effect, there is no good way to identify these individuals who present dental personnel with the greatest risk of HIV transmission. This is especially true in large cities such as Toronto, Montreal and Vancouver where large populations of HIV carriers live. Obviously then, *ALL* patients, not just the obvious AIDS victim, must be treated as if they are HIV carriers and appropriate precautions taken at every appointment.

What, then, are appropriate precautions? The answer to this question must be influenced by the risk of transmission of the virus in the dental office.

2. Oral HIV Transmission

In Canada, HIV infection is a sexually transmitted disease. Transmission in other ways, for example, by shared needles of drug abusers, is uncommon, and to health care workers, distinctly rare. Nevertheless, the presence of HIV in blood and body fluids suggests the theoretic possibility of transmission of the virus by saliva or blood in the dental office.

2a. Transmission by Saliva

Groopman et al¹³ isolated HIV from the saliva of four of six healthy homosexual males at risk for AIDS, four of ten individuals with AIDS-related complex (ARC) and none of four patients with AIDS. The virus was found both within salivary leukocytes and extracellularly at concentrations far less than in blood. Despite its presence, HIV has never been reported to be transmitted by saliva, for example by kissing, French kissing, biting, mouth to mouth resuscitation or even, as yet, during oral sex. Some theories, including the concept that the concentration of HIV in saliva is insufficient to cause infection, have been postulated, but hard evidence has been found which suggests that saliva is, in fact, a hostile medium for HIV, and therefore protective. One recent although small study found that HIV was inactivated by an as yet unknown factor(s) when incubated for 30 minutes in saliva.¹⁴ Furthermore, the saliva of carriers contains anti-HIV antibodies,¹⁵ it contains digestive enzymes and it exerts a potentially lethal osmotic gradient on the envelope of the virus.¹⁶ The experimental and epidemiologic evidence, therefore, clearly indicates that the risk of HIV transmission by saliva is negligible.

2b. Transmission by Blood

HIV is present in serum and particularly in helper T-lymphocytes of carriers and

AIDS patients, presenting a realistic vehicle by which the virus may be transmitted to dental personnel in the office. However, epidemiologic data show that transmission of HIV to health care workers exposed to patients' blood, usually following needlestick injury is rare.⁴ The Centers for Disease Control (CDC) in the United States quote studies involving 1,494 health care workers exposed to HIV infected blood, either parenterally or by mucous membrane contact, from which three and possibly one additional individual appeared to acquire the infection.⁴ All four workers are still apparently healthy. Only eight other health care workers, world wide, with low-risk life styles and not involved in these studies, have also seroconverted.⁴ These data indicate that the risk of HIV transmission by infected blood, even following needlestick and other injuries, is very low (0.3 per cent).^{17,18} For dental personnel the risk appears to be almost negligible. In a study in which 1,231 dentists and hygienists caring for patients in a high-risk American city were tested for HIV antibodies, one dentist, who denied a high-risk lifestyle was found to be antibody positive. He had no known exposure to any HIV carriers or AIDS patients. He did *not* routinely wear gloves in his office and had a high incidence of needlestick injuries to his hands.⁴ As yet, this individual is apparently the only dentist in the world to acquire HIV during professional contact.

This information allows the calculation of the approximate risk of transmission of HIV during any given appointment in the dental office. As of September 14, 1987, there were 43,083 (approximately 40,000) reported AIDS patients in Canada¹⁹ and the United States²⁰ since the estimated beginning of the disease in North America in about 1979. If there are 50 to 100 HIV carriers for each AIDS patient, then there are $50 \times 40,000$ to $100 \times 40,000$ (2,000,000 to 4,000,000) carriers in these two countries. If it is arbitrarily estimated that only half of these individuals seek dental care, then one million to two million asymptomatic carriers have received dental treatment. If it is again conservatively estimated that each of these patients had only two appointments no matter how many years he or she has carried the virus, then there have been at least two to four million dental appointments given to HIV infected individuals. Through all these appointments, only one dentist, working in a high risk city and who failed to routinely wear gloves, is known to have HIV antibodies, and no dental personnel are

known to have developed AIDS from in-office professional contact. If it is conservatively estimated that wearing gloves reduces the incidence of transmission of infectious agents by a factor of 10 to 100 fold, the risk of the gloved dentist in Canada or the United States acquiring HIV at any given appointment is in the range of one chance in 20 million to one chance in 400 million. Inasmuch as other countries have not reported dental personnel acquiring AIDS from in-office contact, it appears that the risk is considerably less than these arbitrary calculations would indicate. Testing of all dental personnel who have supplied treatment to HIV infected individuals and who live a low-risk lifestyle, may reveal a higher incidence of HIV antibody-positive practitioners and an increased risk of transmission in the office. However, epidemiologic evidence suggests that these changes would not significantly alter the given calculations.^{4,21,22} Indeed, data such as these have caused some experts to conclude that HIV is one of the least transmissible pathogens in health care settings.¹⁸

3. AIDS/HIV Perspective

The above discussion and calculations estimate the risk of HIV transmission from a patient to gloved dental personnel to be, at worst, about 1/20,000,000. A review of selected causes of death in Canada²³ indicates that the Canadian dental worker has a greater risk of death, this year, from a motor vehicle accident, from being killed by a motor vehicle while walking or cycling, from fire, from choking on food and even from lightning (Table I). Yet many of these same individuals who happily continue to drive cars, eat and go out in a thunderstorm, refuse or will refuse to treat AIDS victims.

Even more difficult to understand is the fear of HIV felt by the dentist, hygienist or assistant who uses tobacco products. Last year about 30,000 Canadians died from preventable tobacco-related illnesses,⁸ not to mention the millions of Canadians who suffer from smoking related heart disease, cancers (including oral squamous cell carcinoma) and lung diseases. The risk of death this year in dental personnel who smoke is about 24,000 times greater than the risk of acquiring HIV in the dental office when following simple precautionary guidelines.

4. Recommended Precautions

Inasmuch as the asymptomatic HIV carrier is more infectious than the AIDS patients and cannot be easily identified, it is recommended that all dental personnel

TABLE I

Estimated risk of HIV transmission to gloved dental personnel in the dental office compared to the risk of death per year by smoking-related diseases and selected accidental causes

Cause of Death	Number of Deaths Per Year*	Risk Per Canadian Per Year**	Risk of Death Compared to Risk of HIV Transmission to Gloved Dental Personnel Estimated at 1/20,000,000	
Smoking-related diseases ⁸	30,000	1/833	24,010	times greater
Motor vehicle accident	4,075	1/6,135	3,260	times greater
Killed by a vehicle while walking	636	1/39,308	509	times greater
Fire	530	1/47,170	424	times greater
Choking on food	324	1/77,160	259	times greater
Killed by a vehicle while cycling	106	1/235,849	85	times greater
Lightning	3.5	1/7,142,857	2.8	times greater

* The number of accidental deaths per year was determined by dividing the sum of reported incidences for 1982, 1983, 1984 and 1985²³ by four.

** The risk per Canadian per year was determined using an estimated Canadian population of 25,000,000 based on the 1981 census population of 24,343,180.²⁵

treat all patients as potential carriers. Furthermore, considering the seriousness of the end stage of the infection (AIDS) and the present inability to cure the disease by treatment, it is recommended that all dental personnel wear gloves, masks and protective goggles or eye glasses. All instruments, including handpieces, should be sterilized and cabinet or other surfaces contaminated with saliva or blood, cleaned and wiped after each patient, with a suitable disinfectant (e.g.: a 1:10 solution of Javex and water). Care should be taken to avoid needlestick and other injuries to the hands.

It is not necessary to schedule these patients at the end of the day; it is not necessary to use a separate operator isolated from other areas of the dental office; it is not necessary to remove unused equipment, nor to drape chairs, cabinets, light fixtures, x-ray heads, etc; it is not necessary to wear caps and boots, nor to keep records outside of the operator, as suggested in a recent publication.²⁴ There is no evidence to indicate that these additional precautions reduce the already minute risk of transmission of HIV. Furthermore, following this regime between each patient will require additional time and materials which will translate into unjustifiable additional cost to patients.

The only justification for following the stringent infection control techniques suggested by Freund et al.,²⁴ is the greater probability that HIV infected individuals may be Hepatitis B virus (HBV)

carriers, in which case the controls are needed to prevent the transmission of HBV, not HIV.

Major health care organizations^{3,4} have recommended that needles *not* be recapped. This advice is sound when disposable syringes are used, but most dentists in Canada use a metal syringe which holds a carpule of anesthetic and onto which is screwed a disposable needle. After use, the needle must be unscrewed before disposal. It is obviously a hazardous procedure to try to unscrew an uncapped needle which may be contaminated with HIV infected blood. Therefore, it is recommended that needles be *recapped* before removal from the syringe. The recapping can safely be accomplished by using hemostats, cotton pliers or other suitable instruments.

Conclusions

Although somewhat arbitrary, the calculations in this paper are associated with sufficient epidemiologic evidence to be realistic. It is hoped that this information will allow dental personnel to perceive the risk of HIV transmission in the dental office in a more logical manner, and to draw realistic conclusions about their safety in treating AIDS and HIV infected patients. Δ

Dr. Daley is associate professor, Division of Oral Pathology, Department of Pathology, The University of Western Ontario, London, Ont. N6A 5C1.

Reprint requests to Dr. Daley.

References

1. Gottfried, E.L. Acquired immunodeficiency syndrome and the clinical laboratory worker. *Arch Path Lab Med* 11:1024-1026, 1987.
2. Condé Nast Publications Inc. 1988 Women's views survey: sex, money, work, family. *Glamour* 86:142-145, 1988.
3. C.D.C. Recommendations for prevention of HIV transmission in health care setting. *MMWR* 36, Suppl. S3: 1-10, 1987.
4. C.D.C. Recommendations for prevention of HIV transmission in health care setting. *MMWR* 36, Suppl. 25:35-185, 1987.
5. Gerbert, B. AIDS and infection control in dental practice: dentists' attitudes, knowledge, behavior. *JADA* 114:311-314, 1987.
6. Hardie, J. Dentists attitudes towards AIDS. A survey. *J Can Dent Assoc* 53:823-825, 1987.
7. AIDS patients: dentists' dilemma. *ODA News* (6):2, 1987.
8. Markey, R.J. A message from the president. *J Can Dent Assoc* 53:808, 1987.
9. Hardie, J. A 1985 update on AIDS. *J Can Dent Assoc* 51:499-502, 1985.
10. Ministry of Health for Ontario: Understanding AIDS and HIV infection. Information for hospitals and health professionals. Toronto, Queen's Printer, October 1987.
11. Jessamine, G. and Hardie, J. AIDS centre coordinator grants exclusive interview. *J Can Dent Ass* 53:802-805, 1987.
12. Gallo, R.C., Salahuddin, S.Z., Popovic, M. et al. Frequent detection and isolation of cytopathic retroviruses (HTLV-III) from patients with AIDS and at risk for AIDS. *Science* 224:500-503, 1984.
13. Groopman, J.E., Salahuddin, S.Z., Sarngadharan, M.G. et al. HTLV-III in saliva of people with AIDS-related complex and healthy homosexual men at risk for AIDS. *Science* 226:447-449, 1984.
14. Fultz, P.N. Components of saliva inactivate human immunodeficiency virus. *Lancet* 2:1215, 1986.
15. Scully, C. AIDS: at last a ray of hope for dentists (letter). *Br Dent J* 162:176, 1987.
16. Dawes, C. AIDS in Dentistry Conference, Westover Inn, St. Mary's, Ontario, October 15, 1987.
17. Gerberding, J.L., Bryant-LeBlanc, C.E., Nelson, K. et al. Risk of transmitting the human immunodeficiency virus, cytomegalovirus and hepatitis B virus to health care workers exposed to patients with AIDS and AIDS-related conditions. *J Infect Dis* 156:1-8, 1987.
18. Gerberding, J.L. and Henderson, D.K. Design of rational infection control policies for human immunodeficiency virus infection. *J Infect Dis* 156:661-864, 1987.
19. Federal Centre for AIDS: AIDS surveillance in Canada. *C.D.W.R.* 13:167-169, 1987.
20. C.D.C. AIDS surveillance United States. *C.D.W.R.* 12:176-177, 1987.
21. Oral Health Unit, World Health Organization: Dentists' professional and ethical responsibilities for HIV-positive patients and patients with AIDS. *J Can Dent Assoc* 53:807-809, 1987.
22. Ebbesen, P., Melbye, M., Schentz, F. et al. Lack of antibodies to HTLV-III/LAV in Danish dentists. *JAMA* 256:2199, 1986.
23. Statistics Canada: Causes of Death, Vital Statistics, Vol. IV, 1982, 1983, 1984 and 1985.
24. Freund, B.J., McKay, G., Silver, N. et al. AIDS in dentistry: risks and protocol. *Ont Dent* 64:81-86, 1987.
25. Statistics Canada: 1981 Census of Canada: Population: Age, Sex and Marital Status, 1981.

The Guesswork is Gone...

INTRODUCING

T-SCAN

COMPUTERIZED OCCLUSAL ANALYSIS

The Greatest Breakthrough
in Dental Diagnosis Since The X-Ray



When your patient bites on the thin disposable sensor, you will instantaneously see the

● **Location**

● **Timing**

● **Force**

of every tooth contact on the T-Scan screen.

● **Force of tooth contacts are graphically displayed**

● **Tooth contacts are sequentially recorded and displayed by time and location**

● **Color-coded display of relative forces at each tooth contact**

● **Built-in printer documents results**

● **Simple** ● **Fast** ● **Accurate** ●

For further information contact:

WEST-SCAN BITE TECHNOLOGY INC.

Box 5636, Station A, Calgary, AB T2H 1Y1

TOLL FREE 1-800-661-1882

Resisting the Pressure



You need insurance to protect many aspects of your personal and professional life.
While this can make you a very popular person among agents and brokers,
popularity can be a little overwhelming!

When you feel you might be losing control of your insurance decisions,
close that door and call CDSPI. We'll provide you with clear, unbiased information
about your options, including your own Canadian Dentists' Insurance Program (CDIP).
We'll help YOU keep control of your insurance decisions.

Our free Insurance Review Service will provide an informative, written commentary on
your current policies or on proposals for individual insurance. We'll discuss the
proposal in terms of YOUR needs and in relation to the coverage offered by CDIP.

When you're feeling the pressure, call CDSPI.



CDSPI

For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario **except** Area Code 807

497-7117 Metro Toronto

The Canadian Dentists' Insurance Program is owned and operated by the CDA and the provincial dental associations and administered by CDSPI.

This material has been approved by our consultants/brokers and insurers.

Canada's Leading Drug Reference Text



The Compendium of Pharmaceuticals and Specialties is published for the benefit of all health professionals.

Updated annually, the CPS is your reliable information source on pharmaceutical products available in Canada.

The 1988 edition of Compendium of Pharmaceuticals and Specialties contains important new information

- Over 190 new products have been added to the 3,000 previously listed
- Selected dentistry product listing
- Section on clinical relevance for excipients
- Section on homeopathic remedies
- 60% and more revisions to the text

To order your copy of the current CPS, please complete the order form below and return with your cheque or money order made payable to The Canadian Pharmaceutical Association.

A Canadian Pharmaceutical Association Publication



CPS '88 ORDER FORM

Enter my order for copies of CPS '88 at \$71.00 each
(Ontario residents add 8% sales tax)

My cheque for \$..... is enclosed.

SHIP TO: (please print clearly)

SURNAME

FIRST NAMES

STREET ADDRESS

POSTAL CODE

TELEPHONE NUMBER

**Return To: Canadian Pharmaceutical Association
1785 Alta Vista Drive
Ottawa, Ont. K1G 3Y6**

TERMS AND CONDITIONS

1. Payment must accompany order card.
2. Domestic Shipments "Prepaid" by Parcel Post.
3. No orders will be replaced or credited 6 months after shipment. Authorized returns will be subject to a 15% handling charge.

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

in an elderly female psychiatric patient

Gerard L. Lapeer, DDS
Kingston, Ont.

ABSTRACT

One of the most important strategies for curbing the spread of AIDS is to identify individuals or groups at risk and to make an early diagnosis. This article presents the case of an elderly female psychiatric in-patient who had developed advanced clinical manifestations of AIDS before being diagnosed. The reasons for delayed diagnosis and the importance of dental consultation in suspected AIDS patients are discussed.

SOMMAIRE

L'un des moyens stratégiques les plus importants pour arrêter la propagation du SIDA est d'identifier les personnes ou les groupes présentant des risques et de poser tôt un diagnostic. Dans cet article, on décrit un cas particulier, celui d'une femme hospitalisée pour des raisons psychiatriques qui présentait des signes cliniques avancés du SIDA avant qu'on ne diagnostique la maladie. On commente également les raisons pour lesquelles le diagnostic a été retardé et l'importance de la consultation dentaire pour les patients que l'on soupçonne d'être atteints du SIDA.

Since the acquired immunodeficiency syndrome (AIDS) was first described in 1981,¹ the disease has had an exponential increase in incidence with a doubling time of under a year.² Approximately 90 per cent of AIDS sufferers have been classified into specific risk groups.^{3,4} The purpose of this article is to present the case of a 67-year-old Caucasian female psychiatric in-patient who was eventually diagnosed as suffering from AIDS. The diagnosis of AIDS was delayed due to the suspicion that her symptoms resulted from some other pathology and because of her age and sex. In addition, it may have been supposed that in the institutional setting, she was isolated from potential sources of HTLV-III infection. Dental consultation resulted in a preliminary diagnosis of AIDS, which was confirmed by appropriate AIDS testing.

Acquired Immunodeficiency Syndrome

(a) Etiology and Transmission

AIDS is a disease complex characterized by opportunistic infections and malignant neoplasms in association with a known cause for immunodeficiency.⁵ Its etiologic

agent is the retrovirus HIV (human T-cell lymphotropic virus — type III)⁶ which destroys the T4 subset of T lymphocytes, greatly diminishing the individual's immunologic competence.^{3,4}

HIV transmission, as with any viral pathology, requires a portal for the virus to leave the infected host, sustained survival of the virus in its released environment and the ability to enter a susceptible host establishing infection in a cell capable of supporting replication. HIV has been isolated in blood,⁷ semen,⁸ vaginal fluids,⁹ saliva,¹⁰ tears¹¹ and breast milk,¹¹ but blood,¹³ semen¹⁴ and vaginal fluids¹⁴ appear to be the only media capable of providing sufficient virus for transmission. Susceptible sites for the establishment of HIV infection⁴ include the urethra of the penis, vagina, rectum, vascular system and open wounds of the skin.

For sexual transmission, the number of sexual encounters between partners required to transmit HIV from the infected partner to the non-infected partner is unknown.⁴ The differences between transmission rates from men to men, from men to women and women to men is also unknown.⁴ And the transmission efficiency between anal and vaginal intercourse is unknown.⁴ All that is known

is that sexual intimacy between AIDS-infected and non-affected partners has a strong possibility of eventually transmitting HIV to the non-infected partner.⁴

For blood transmission, the susceptibility to infection depends on the amount of blood transfused.⁴ The intravenous route of blood with HIV results in almost certain infection,¹⁵ whereas a needle prick with a small amount of HIV containing blood has very little risk.¹⁶ Individuals with open wounds on the skin have an increased risk of becoming infected by the vascular route, depending on the size and number of wounds and the amount of contaminated blood they are exposed to.^{17,18}

(b) Epidemiology

The initial risk group for AIDS-infected individuals comprised homosexual and bisexual men¹ and intravenous drug abusers¹⁹ but has expanded to include Haitians in the United States and Haiti,²⁰ hemophiliacs receiving factor VIII concentrate,²¹ the recipients of transfusions,²² infants and children of high risk populations,^{23,24} prison inmates,²⁵ female sex partners of males suffering from AIDS,²⁶ male sex partners of females suffering from AIDS²⁷ and health care workers.^{17,18} These groups are a tentative classification of individuals at risk for contacting AIDS, since the transmission of HIV can occur within a given risk group, between risk groups and can be transmitted to members of a different population of individuals, resulting in a new risk group.²⁸

The number of individuals presently infected by HIV is difficult to estimate.²⁸ First, the latency period for AIDS has not been accurately calculated. It has been estimated to be one to two years by some investigators²⁹ and five years or longer by others.³⁰ The latter estimate is considered to be more accurate since investigations reporting short latency periods involved oversampling of AIDS cases that developed rapidly.²⁸ Secondly, not all individuals exposed to HIV will develop AIDS,³¹ but may remain in an infectious carrier state for life with little likelihood of reverting from retroviral infection to virus free state.²⁸ And thirdly, although some individuals appear to develop the disease after a single exposure to the virus, HIV contaminated blood transfusions, and others, after multiple exposures to HIV, sexually active promiscuous homosexuals, co-factors such as age, sexual behaviour, prior health status and chronologic time have to be analyzed to determine their effect on the development of AIDS.²⁸

Further extensive epidemiological research is required to gain better insight into this devastating health problem. At present AIDS has a very grave prognosis — 55 per cent of all cases reported to the Centers for Disease Control by June 23, 1986, had died from the disease.³

(c) Clinical Manifestations

The clinical manifestations of AIDS can be divided into two stages: the prodromal phase and the disease state. The signs and symptoms of the prodromal phase include^{3,22} low grade fever, night sweats, shortness of breath, unexplained weight loss, diarrhea, fatigue, non-tender lymphadenopathy, anemia, depressed blastogenesis, decreased number of T-helper cells, depressed helper-suppressor T-lymphocyte ratio (T4/T8 is less than 1), elevated serum globulins, increased levels of circulating immune complexes and cutaneous anergy. Also included in the prodromal phase of AIDS is oral "hairy" leukoplakia,^{33,34} which is a slightly raised, poorly demarcated lesion with a corrugated or hairy surface, located principally on the lateral borders of the tongue. The lesion can range in size from a few millimeters to 3.5×2 cm., will not rub off and is asymptomatic. The individual having two of the clinical findings and two of the laboratory findings is considered to have AIDS-related complex (ARC).^{3,32} The symptoms of the ARC patient may persist for years³ with no other sequelae. ARC patients are viremic and therefore can transmit HIV in their blood and semen.³

The disease state of AIDS comprises any of the above findings plus opportunistic infections and/or malignancies. The most frequent opportunistic infection is pneumocystis carinii pneumonia,³⁵ which is also the most common cause of death in AIDS patients.³⁶ Other life-threatening opportunistic infections include cryptococcal meningitis,³⁷ toxoplasmosis,³⁸ cryptosporidiosis,³⁹ mycobacterium avium,⁴⁰ mycobacterium tuberculosis⁴¹ and cytomegalovirus.⁴² Non-threatening opportunistic infections include oropharyngeal candidiasis,⁴³ herpes simplex⁴⁴ and herpes zoster.⁴⁵

The commonest malignancy associated with AIDS is Kaposi's sarcoma³⁶ which initially occurs as single or multiple red, pink or violet macules, papules or nodules on the skin or mucosal surfaces.⁴⁶ It takes a very aggressive course involving numerous cutaneous and visceral sites³⁶ such as the oral cavity; skin on the trunk, arms, head and neck; gastrointestinal tract; lymph nodes; lungs; pancreas; adrenal glands; spleen and testes.⁴⁶ The net result is painful bulky lesions, dis-

figurement, lymphatic obstruction and respiratory compromise.³⁶ A second neoplasm which has been reported in AIDS-infected homosexuals is high-grade B-cell, non-Hodgkin's lymphoma.⁴⁷ It is usually diagnosed at a very advanced stage with extranodal, CNS and bone marrow involvement.⁴⁷ And the third malignancy which has occurred in AIDS patients is squamous cell carcinoma.³²

The oral cavity has numerous lesions which may occur as a result of HIV infection. Three of these lesions are very important from a diagnostic standpoint: candidiasis,⁴³ which could be the initial manifestation of the disease, "hairy" leukoplakia^{33,34} and Kaposi's sarcoma.⁴⁸ The other lesions are not as specific for AIDS. The oral lesions associated with HIV infection have been summarized by Greenspan et al⁴⁶ and include: (1) fungal infections — oral candidiasis (pseudomembranous, erythematous, hyperplastic, angular cheilitis) and oral histoplasmosis; (2) bacterial infections — fusospirochetal infection (necrotizing gingivitis), non-specific infections (chronic periodontitis), mycobacterium avium (intracellular infection) klebsiella pneumonia and enterobacterium cloacae; (3) viral infections — herpetic stomatitis, hairy leukoplakia oral zoster, oral condyloma acuminatum, and cytomegalovirus (xerostomia); (4) neoplasms — oral Kaposi's sarcoma, oral squamous cell carcinoma, and non-Hodgkin's lymphoma, and (5) unknown etiology — recurrent aphthous ulceration, idiopathic thrombocytopenic purpura (oral ecchymoses) and salivary gland enlargement.

(d) Diagnosis and Treatment

The diagnosis of AIDS is based on the clinical manifestations of the disease, as previously outlined, and serologic testing for HTLV-III antibodies. Individuals who are seropositive to the enzyme-linked immunosorbent assay (ELISA), and also positive to the western blot or immunofluorescence assay are considered to be infected with HIV.⁴ Using the ELISA test alone may result in false-positive or false-negative results depending on the circumstances.^{49,50} If the ELISA is utilized to test groups which have a low prevalence of infection, most of the "positive" results are low-reactive and therefore false-positives.⁴⁹ False-negative results can occur during HIV's "window phase".⁴ This occurs immediately after infection when viral replication can occur without a serologic response.⁴ The "window phase" usually lasts for several weeks,⁵⁰ but can extend up to six months' duration.⁵¹ After the "win-

dow phase", seronegative results are considered to be true-negatives.⁴

At present there is no immunization or antiviral therapy for the treatment of AIDS.^{4,36} Treatment is palliative and is confined to the various clinical manifestations of the disease.³⁶ A number of strategies for the prevention of AIDS have been proposed^{4,28} and for the time being, appear to be the only possible means of curbing the devastating disease.

Case Report

A 67-year old Caucasian female from a psychiatric hospital was referred for dental consultation regarding an oral candidiasis infection of six months' duration, which had not responded to conventional therapy. In the past several months she had also been suffering from chronic pneumonia, chronic nipple infections, steady unaccounted-for weight loss, fatigue, intermittent diarrhea and non-productive cough. An upper and lower G.I. series, bone scan, standard chest radiographs, ECG, mammogram and culture and sensitivities had been non-contributory. Routine blood work demonstrated a depressed hemoglobin and bone marrow, elevated immunoglobulins. Her current medication regime comprised chlorpromazine 200 mg. t.i.d., clonazepam 1 mg, prn up to qid, mycostatin oral suspension 100,000 units/ml qid and Bactrim DF b.i.d. An unknown malignancy was suspected.

In the past 34 years, the patient had been hospitalized on numerous occasions for chronic schizophrenia. At the time of her consultation, she had been a patient of a psychiatric hospital for three years, being readmitted from a nursing home facility due to a marked increase in antisocial behaviour and gross social deterioration. Her present behaviour pattern consisted of excessive profanity, excessive smoking of cigarettes, searching through garbage bins for cigarettes, attempts to flush clothing items down toilets and suspected sexual promiscuity. Her sexual activity was by self-report, claiming to have at least two heterosexual partners.

Besides her chronic schizophrenia, her medical history revealed that she had undergone a laparotomy and splenectomy at the time of her psychiatric admittance. This procedure required the transfusion of six units of blood.

The patient presented as a confused debilitated elderly female who had difficulty in breathing. Examination of the oral cavity (**Fig. 1**) revealed pseudomembranous candidiasis of the labial and buccal mucosa and tongue, angular cheilitis



Fig. 1. Photograph of patient's mouth demonstrating pseudomembranous candidiasis on the labial and buccal mucosa, possible "hairy" leukoplakia on left lateral border of the tongue, leukoplakia on the left buccal mucosa of the cheek, stained teeth from excessive smoking and angular cheilitis, which can be seen under the cheek retractors, particularly on the right side.

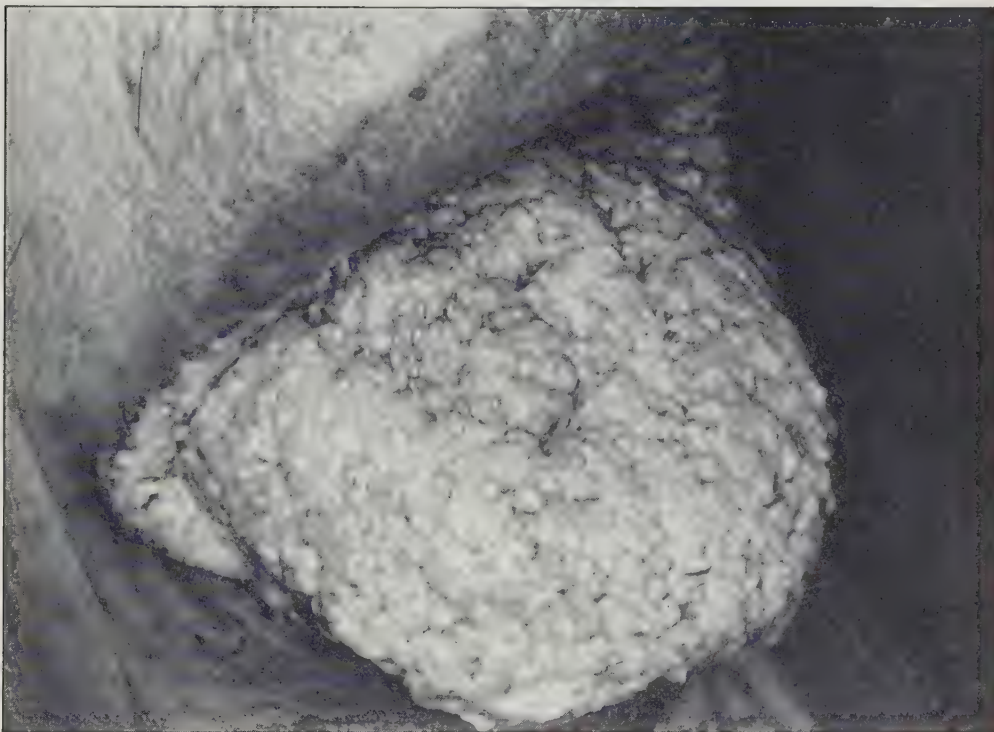


Fig. 2. Photograph of patient's tongue eight weeks after initial consultation. Note the extensive candidiasis and possible "hairy" leukoplakia on the lateral borders and dorsal surface.

and leukoplakia of the buccal mucosa of the cheek. Her few remaining teeth were heavily stained from cigarette smoking.

The pseudomembranous candidiasis and current clinical status indicated a differential diagnosis of AIDS and serologic testing for HIV antibodies was requested. The patient was seropositive for the ELISA and Western blot assay, confirming the diagnosis.

Further investigative procedures verified a T4/T5 ratio of less than one. Her pneumonia was contained to the right lower lobe and a bronchoscopy was performed. The patient was negative for pneumocystis carinii and no other etiologic agent for her pneumonia could be ascertained. The bronchoscopy also revealed that her trachea and bronchi were clear, but she had a severe candida

infection involving the pharynx. Evidence of Kaposi's sarcoma could not be detected.

The patient was reviewed in the dental clinic eight weeks after the initial consultation. Her oral condition had degenerated severely over this period with the most dramatic change occurring on the tongue. The lateral borders and dorsal surface of the tongue were covered extensively with candidiasis (Fig. 2).

We were unable to obtain consent for a biopsy to verify a possible diagnosis of "hairy" leukoplakia, although clinical evaluation strongly suggested this. Shortly after the last consultation, the patient died. Consent for an autopsy could not be obtained.

Discussion

The protracted existence of an undiagnosed case of AIDS in an institutionalized long-term psychiatric patient generates serious questions. How could the patient develop advanced clinical manifestations of AIDS before being diagnosed and why was this patient not considered to be a potential AIDS victim? Some speculation is required to answer this. First, it was probably postulated that being an institutionalized psychiatric patient, she was isolated from potential sources of HIV infection.⁵² Secondly, there is still prejudice among some health care professionals against a diagnosis of AIDS;⁵² they would rather not consider the possibility of the disease occurring in their facility or community.⁵³ Thirdly, because of the rarity of AIDS in some regions and because of its sometimes vague symptomatology,^{3,32} clinicians who are unfamiliar with the disease could be led to a diagnosis of other differential pathology. This patient's debilitated condition, chronic candida infection, excessive smoking and vague clinical symptoms suggested a diagnosis of an unknown malignancy. And fourthly, both her age³ and sex³ categorized her to be in a low risk group for AIDS.

Since the patient was proven to have AIDS, where and when did she contact the virus? An important factor which was overlooked in her medical history was that she had received blood transfusions during her laparotomy procedure. Patients who were transfusion recipients during that period have been placed at an increased risk for HIV infection.^{15,22} It is now believed that this was the mode of transmission for her HIV contact.

It is worth considering the ramifications which could result from this patient residing in an institutional setting. The patient made daily contact with other patients

and health care professionals. Although she claimed to have had heterosexual relations with at least two other patients who were subsequently discharged, there is no concrete evidence to support her sexual promiscuity, but the probability of sexual encounters cannot be discounted. Sexual activity amongst psychiatric inpatients does occur, but is considered to occur in less than 10 per cent of the resident population.^{54,55} Therefore, has she inadvertently transmitted HIV to any other individuals?

This case has also restated the importance of dental consultation in suspected AIDS patients. Oral candidiasis and "hairy" leukoplakia are strong indicators that the differential diagnosis includes AIDS and appropriate serologic testing for HIV antibody be administered. Also, "hairy" leukoplakia, which has only been documented in male homosexuals,³² was a possible clinical finding in this female patient, indicating that "hairy" leukoplakia could become an important diagnostic feature in all individuals and/or groups at risk for acquired immunodeficiency syndrome.

It is unfortunate that important diagnostic and research information was lost because consent could not be obtained for biopsy and autopsy investigative procedures.

Conclusion

One of the most important strategies, at present, for curbing the spread of AIDS is to identify individuals or groups at risk and to make an early diagnosis. This article has presented the case of an elderly female psychiatric in-patient who was diagnosed with clinical manifestations of AIDS only after oral symptoms became severe and the dentist requested testing for AIDS. The reasons for a delayed diagnosis were discussed. Since the oral cavity may present the first clinical manifestations of AIDS, the dentist has an important role on the AIDS diagnostic team. Δ

Acknowledgements

The author wishes to express his thanks to the following for their invaluable contributions to the writing and typing of this manuscript: Darlene Quinn, Dr. Cameron Stevenson, Dennis Main and Jenefer Hemsted.

Dr. Lapeer is on the staff of the Department of Dentistry, St. Mary's of the Lake Hospital, Box 3600, Kingston, Ont. K7L 5A2.

Reprint requests to Dr. Lapeer.

References

1. Gottlieb, M.S., Schroff, R., Shanker, H.M. et al. Pneumocystis carinii pneumonia and mucosal candidiasis in previously healthy homosexual men: evidence of a new acquired cellular

immunodeficiency. *N Engl J Med* 305:1425-1431, 1981.

2. Curran, J.W., Morgan, W.M., Hardy, A.M. et al. The epidemiology of AIDS: Current status and future prospects. *Science* 29:1352-1357, 1985.

3. Anneroth, G., Anneroth, J. and Lynch, D.P. Acquired immune deficiency syndrome (AIDS) in the United States in 1986: Etiology, epidemiology, clinical manifestations and dental implications. *J Oral Maxillofac Surg* 44:956-964, 1986.

4. Francis, D.P. and Chin, J. The prevention of acquired immunodeficiency syndrome in the United States: An objective strategy for medicine, public health, business and the community. *JAMA* 257:1357-1366, 1987.

5. Seligmann, M., Chess, L., Fahey, J.L. et al. AIDS - An immunologic re-evaluation. *N Engl J Med* 311:1286-1292, 1984.

6. Popovic, M., Sarngadharan, M.A., Read, E. et al. Detection, isolation and continuous production of cytopathic retrovirus (HTLV-III) from patients with AIDS and pre-AIDS. *Science* 224:497-500, 1984.

7. Gallo, R.C., Salahuddin, S.Z., Popovic, M. et al. Frequent detection and isolation of cytopathic retrovirus (HTLV-III) from patients with AIDS and at risk for AIDS. *Science* 224:500-503, 1984.

8. Zagury, D., Bernard, J., Leibowitch, J. et al. HTLV-III in cells cultured from semen of two patients with AIDS. *Science* 226:449-451, 1984.

9. Wofsy, C.B., Cohen, J.B., Hauer, L.B. et al. Isolation of AIDS-associated retrovirus from genital secretions of women with antibodies to the virus. *Lancet* 1:527-529, 1986.

10. Ho, D.D., Byington, R.E., Schooley, R.T. et al. Infrequency of isolation of HTLV-III virus from saliva in AIDS. *N Engl J Med* 313:1606, 1985.

11. Fujikawa, L.S., Palestine, A.G., Nussenblatt, R.B. et al. Isolation of human T-lymphotropic virus type-III from the tears of a patient with the acquired immunodeficiency syndrome. *Lancet* 2:529-530, 1985.

12. Thirty, L., Sprecher-Goldberger, S., Jonckheer, T. et al. Isolation of AIDS virus from cell free breast milk of three healthy virus carriers. *Lancet* 2:891-892, 1985.

13. Peterman, T.A., Joffe, H.W., Feorino, P.M. et al. Transfusion-associated immunodeficiency syndrome in the United States. *JAMA* 254:2913-2917, 1985.

14. Redfield, R.R., Markham, P.D., Salahuddin, S.Z. et al. Frequent transmission of HTLV-III among spouses of patients with AIDS-related complex and AIDS. *JAMA* 253:1571-1573, 1985.

15. Ward, J.W., Deppe, D.A., Samson, S. et al. Risk of human immunodeficiency virus infection from blood donors who later developed the acquired immunodeficiency syndrome. *Ann Intern Med* 106:61-62, 1987.

16. Hirsch, M.S., Wormser, G.P., Schooley, R.T. et al. Risk of nosocomial infection with human T-cell lymphotropic virus III (HTLV-III). *N Engl J Med* 31:1-4, 1985.

17. Centers for Disease Control Update: Human immunodeficiency virus infections in health-care workers exposed to blood of infected patients. *MMWR* 36:285-289, 1987.

18. Grint, P. and McEvoy, M. Two associated cases of acquired immune deficiency syndrome (AIDS). *Communicable Dis Rep* 42:4, 1985.

19. Small, C.B., Klein, R.S., Friedland, G.H. et al. Community-acquired opportunistic infec-

tions and defective cellular immunity in heterosexual drug abusers and homosexual men. *Am J Med* 74:433-441, 1983.

20. Vieira, J., Frank, E., Spira, T.J. and Landesman, S.H. Acquired immune deficiency in Haitians: opportunistic infections in previously healthy Haitian immigrants. *N Engl J Med* 308:125-129, 1983.

21. Ragni, M.V., Spero, J.A., Lewis, J.H. et al. Acquired immunodeficiency-like syndrome in two haemophiliacs. *Lancet* 1:213-214, 1983.

22. Centers for Disease Control. Possible transfusion associated acquired immune deficiency syndrome (AIDS). *MMWR* 31:652-654, 1982.

23. Oleske, J., Minnefor, A., Cooper, R. et al. Immune deficiency syndrome in children. *JAMA* 249:2345-2349, 1983.

24. Rubinstein, A., Sicklick, M., Gupta, A. et al. Acquired immunodeficiency with reversed T4/T8 ratios in infants born to promiscuous and drug-addicted mothers. *JAMA* 249:2350-2356, 1983.

25. Wormser, G.P., Krupp, L.B., Hanrahan, J.P. et al. Acquired immunodeficiency syndrome in male prisoners: new insights into an emerging syndrome. *Ann Intern Med* 98:297-303, 1983.

26. Harris, C., Small, C.B., Klein, R.S. et al. Immunodeficiency in female sexual partners of men with the acquired immunodeficiency syndrome. *N Engl J Med* 308:1181-1184, 1983.

27. Redfield, R.R., Markham, P.D., Salahuddin, S.Z. et al. Heterosexually acquired HTLV-III/LAV disease (AIDS-related complex and AIDS): epidemiologic evidence for female-to-male transmission. *JAMA* 254:2094-2096, 1985.

28. DeGruttola, V., Mayer, K. and Bennett, W. AIDS: Has the problem been adequately assessed? *Reviews of Infectious Diseases* 8:295-305, 1986.

29. Curran, J.W., Lawrence, D.N., Jaffe, H. et al. Acquired immunodeficiency syndrome (AIDS) associated with transfusions. *N Engl J Med* 310:69-75, 1984.

30. Feorino, P.M., Jaffer, H.W., Palmer, E. et al. Transfusion-associated acquired immunodeficiency syndrome: evidence for persistent infection in blood donors. *N Engl J Med* 314:1293-1296, 1985.

31. Fishbein, D.B., Kaplan, J.E., Spira, T.J. et al. Unexplained lymphadenopathy in homosexual men: a longitudinal study. *JAMA* 254:930-935, 1985.

32. Silverman, S., Migliorati, C.A., Loxada-Nur, F. et al. Oral findings in people with/or at high risk for AIDS: a study of 375 homosexual males. *JADA* 112:187-192, 1986.

33. Greenspan, D., Greenspan, J.S., Conant, M. et al. Oral "hairy" leukoplakia in male homosexuals: evidence of association with both papillomavirus and a herpes-group virus. *Lancet* 2:831-834, 1984.

34. Greenspan, J.S., Greenspan, D., Lennette, E.T. et al. Replication of Epstein-Barr Virus within the epithelial cells of oral "hairy" leukoplakia, an AIDS-associated lesion. *N Engl J Med* 313:1564-1571, 1985.

35. Broaddus, C., Dake, M.D., Stulbay, M.S. et al. Bronchoalveolar lavage and transbronchial biopsy for the diagnosis of pulmonary infections in the acquired immunodeficiency syndrome. *Ann Intern Med* 102:747-752, 1985.

36. Kaplan, L.D., Wofsy, C. and Volberding, P.A. Treatment of patients with acquired immunodeficiency syndrome and associated manifestations. *JAMA* 257:1367-1374, 1987.

37. Zuger, A., Louie, E., Holzman, R.S. et al. Cryptococcal disease in patients with the acquired

immunodeficiency syndrome. *Ann Intern Med* 104:234-240, 1986.

38. Wong, B., Gold, J.W.M., Brown, A.E. et al. Central nervous system toxoplasmosis in homosexual men and parenteral drug abusers. *Ann Intern Med* 100:36-42, 1984.

39. Soave, R., Danner, R.L., Honig, C.L. et al. Cryptosporidiosis in homosexual men. *Ann Intern Med* 102:593, 1985.

40. Hawkins, C.C., Gold, J.M.W., Whimbey, E. et al. Mycobacterium avium complex infections in patients with acquired immunodeficiency syndrome. *Ann Intern Med* 105:184-188, 1986.

41. Pitchenik, A.E., Bura, J. and Cole, C.H. Tuberculin testing for persons with positive serologic studies for HTLV-III. *N Engl J Med* 314:447, 1986.

42. Shepp, D.H., Dandliker, P.S., de Miranda, P. et al. Activity of 9-[2-hydroxy-1 (hydroxymethyl) ethoxy - methyl] guanine in the treatment of cytomegalovirus pneumonia. *Ann Intern Med* 103:368-373, 1985.

43. Klein, R.S., Harris, C.A., Small, C.B. et al. Oral candidiasis in high-risk patients as the initial manifestation of the acquired immunodeficiency syndrome. *N Engl J Med* 311:354-358, 1984.

44. Siegal, F.P., Lopez, C., Hammer, G.S. et al. Severe acquired immunodeficiency in male homosexuals, manifested by chronic perianal ulcerative herpes simplex lesions. *N Engl J Med* 305:1439-1444, 1981.

45. Balfour, H.H. Jr, Bean, B., Laskin, O.L. et al. Acyclovir halts progression of herpes zoster in immunocompromised patients. *N Engl J Med* 308:1448-1453, 1983.

46. Greenspan, J.S., Pindborg, J.J., Greenspan, D. et al. AIDS and the dental team. Year Book Medical Publishers, Inc., Chicago, 1986.

47. Zeigler, J.L., Beckstead, J.A., Volberding, P.A. et al. Non-Hodgkins lymphoma in 90 homosexual men: Relation to generalized lymphadenopathy and the acquired immunodeficiency syndrome. *N Engl J Med* 331:565, 1984.

48. Lozada, F., Silverman, S., Migliorati, C.A. et al. Oral manifestations of tumor and opportunistic infections in the acquired immunodeficiency syndrome (AIDS): findings in 53 homosexual men with Kaposi's Sarcoma. *Oral Surg* 56:491-494, 1983.

49. Weiss, S.H., Goedert, J.J., Sarngadharan, M.G. et al. Screening test for HTLV-III (AIDS agent) antibodies: Specificity sensitivity and applications. *JAMA* 253:221-225, 1985.

50. Esteban, J.I., Shik, J.W.-K., Tae, C.-C. et al. Importance of Western blot analysis in predicting infectivity of anti-HTLV-III/LAV positive blood. *Lancet* 2:1083-1086, 1985.

51. Groopman, J.E., Hartzband, P.I., Shulman, L. et al. Antibody sero-negative human T-lymphotropic virus type III (HTLV-III) infected patients with acquired immunodeficiency syndrome or related disorders. *Blood* 66:742-744, 1985.

52. Personal observation.

53. Greig, J.D. AIDS: What every responsible Canadian should know. The Toronto Sun Publishing Corporation Ltd. and The Canadian Public Health Association, Toronto-Ottawa, 1987.

54. Keitner, G.I., Baldwin, L.M., McKendall, M.J. Copatient Relationships on a Short-Term Psychiatric Unit. *Hospital and Community Psychiatry*, Feb. 1986; 37(2):2:166-170.

55. Keitner, G., Grof, P. Sexual and Emotional Intimacy Between Psychiatric Inpatients: Formulating a Policy. *Hospital and Community Psychiatry*, 1981; 32(3):188-193.

Ultracaine® D-S (articaïne HCl)

Action

Ultracaine (articaïne HCl) has been shown to block conduction by interfering with the process fundamental to the generation of the nerve action potential, namely the large transient increase in the permeability of the membrane to sodium ions that is produced by a slight depolarization of the membrane.

Indications

Ultracaine is indicated for infiltration anesthesia and nerve block anesthesia in clinical dentistry.

Contraindications

Ultracaine is contraindicated in patients with a known hypersensitivity to local anesthetics of the amide group; in the presence of sepsis near the proposed injection site; in patients with severe shock; in patients with any degree of heart block; in patients with existing neurologic disease and in patients with severe hypertension.

When **Ultracaine** with epinephrine is used, the caution required of any vasopressor drug is in order.

Warnings

Methemoglobinemia

As with other local anesthetics, **Ultracaine** is capable of producing methemoglobinemia: this has been observed when an intravenous regional anesthesia technique was used. **Ultracaine**, when used as directed in dental procedures, was not associated with methemoglobinemia.

Usage in Pregnancy

Animal studies have not demonstrated teratogenic or embryotoxic effects of **Ultracaine**. However, safe use in pregnant women has not been established. **Ultracaine** is unlikely to be transferred to the mother's milk since it is rapidly decomposed and eliminated.

Precautions

Resuscitative equipment and drugs should be readily available when any local anesthetic is used.

The safety and effectiveness of local anesthetics depend upon proper dosage, correct technique, adequate precautions and readiness for emergencies. **Ultracaine** should be used cautiously in persons with known drug allergies or sensitivities, or suspected sensitivity to the amide-type local anesthetics.

Patients with Special Diseases and Conditions

The p-hydroxybenzoic acid methyl ester contained in **Ultracaine**, as a preservative, has a hydroxy group in the para-position. This fact should be borne in mind in the case of patients with para-group allergy.

Adverse Reactions

Reactions to **Ultracaine** are characteristic of those associated with amide-type local anesthetics. A major cause of adverse reactions to this group of drugs is excessive plasma levels, which may be due to overdosage, inadvertent intravascular injection, or slow metabolic degradation. Other causes of reactions to these local anesthetics may be hypersensitivity, idiosyncrasy, or diminished tolerance.

Dosage and Administration

As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized, the vascularity of the tissues, the number of neuronal segments to be blocked, individual tolerance and the technique of anesthesia. The lowest dosage, needed to provide effective anesthesia should be administered.

	Infiltration	Nerve Block	Oral Surgery
Ultracaine DS forte	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL
Ultracaine DS	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL

It is recommended not to exceed 7 mg/kg body weight in adults.

To date, **Ultracaine** has not been administered to children under 4 years of age, nor in doses greater than 5 mg/kg in children between the ages of 4 and 12.

Supply

Ultracaine D-S: 4% with epinephrine (1/200,000) and **Ultracaine D-S forte**: 4% with epinephrine (1/100,000) are available in 1.7 mL cartridges, box of 50 cartridges.

Product Monograph available on request.

References:

- Dudkiewicz A, Schwartz S, Laliberté R: Effectiveness of Mandibular Infiltration in Children Using the Local Anesthetic Ultracaine®. *Canadian Dental Association Journal* 1987; Vol 53 (No. 1): 29-31.
- Lemay H et al: Ultracaine in conventional operative dentistry. *Journal of the Canadian Dental Association* 1984; 50 (No. 9): 703-708.

Hoechst and ®, Reg. Trademarks of Hoechst AG, Germany (West)

Hoechst 

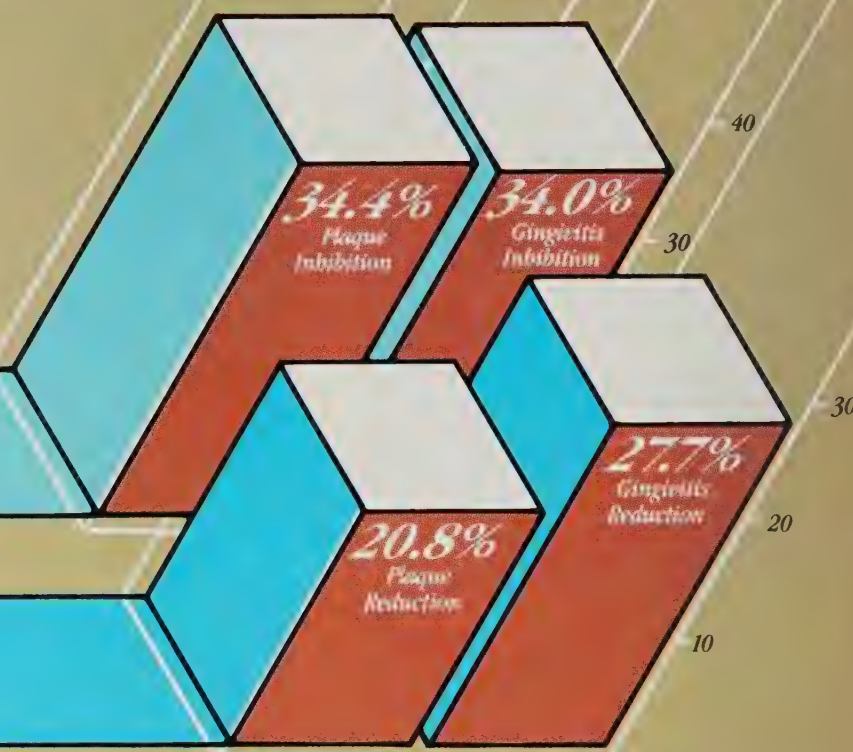
THE FIRST NON-Rx ANTIMICROBIAL ACCEPTED TO HELP CONTROL SUPRAGINGIVAL PLAQUE AND GINGIVITIS

PERCENT REDUCTION OF PLAQUE AND GINGIVITIS SCORES: LISTERINE® VS. CONTROL FROM BASELINE TO 6 MONTHS

**Helps Prevent
Plaque and Gingivitis¹**

**Reduces Existing
Plaque and Gingivitis²**

Plaque measurements were made using the Turesky
Modification of the Quigley-Hein Index,³ gingivitis
measurements using the Modified Gingival Index.⁴



NO REPORTS OF CLINICAL SIDE EFFECTS, EVEN WITH REGULAR AND LONG-TERM USAGE:

- Did not cause extrinsic tooth stain
- Did not promote calculus formation
- Did not cause mucosal aberrations
- Did not alter taste perception
- Did not promote microbial resistance

Dosage and Administration:

Instruct your patients to rinse for 30 seconds with 20 ml of Listerine twice a day in addition to brushing, flossing, and regular dental care.

DESTROYS A BROAD SPECTRUM OF PLAQUE BACTERIA*

Plaque Microorganisms Susceptible to Listerine Antiseptic	
Gram-Positive Facultative Cocci	<i>Streptococcus sanguis</i> <i>Streptococcus mutans</i> <i>Streptococcus salivarius</i>
Gram-Positive Facultative Rods	<i>Lactobacillus acidophilus</i>
Gram-Positive Anaerobic Rods	<i>Actinomyces viscosus</i>
Gram-Negative Anaerobic Rods	<i>Bacteroides intermedius</i> <i>Fusobacterium nucleatum</i> <i>Leptotrichia buccalis</i>
Yeasts	<i>Candida albicans</i>

*in vitro testing

Listerine contains a proven combination of thymol, eucalyptol, methylsalicylate and menthol in a hydroalcoholic vehicle. These antimicrobial ingredients are active against the plaque microorganisms commonly associated with gingivitis.

1. DePaola LG, et al: Chemotherapeutic inhibition of supragingival plaque and gingivitis development. *J Dent Res* 65:274 (Abstract 941), 1986.

In this six-month, double-blind study, twice-daily use of Listerine Antiseptic with regular oral hygiene following professional prophylaxis inhibited the development of both supragingival plaque and gingivitis by 34% compared to the hydroalcoholic control¹

	Listerine	Control
Plaque Index	1.15	1.75
Gingival Index	0.92	1.39

2. Lamster IB, et al: The effect of Listerine Antiseptic on reduction of existing plaque and gingivitis. *Clin Prev Dent* 5:12-16, 1983.

This six-month, double-blind study demonstrated the efficacy of twice-daily use of Listerine in reducing plaque and gingivitis. Scores measured a 20.8% reduction in supragingival plaque and 27.7% reduction in gingivitis in the Listerine group — a significant improvement over normal oral hygiene alone for the Listerine group versus the vehicle control²

	Listerine	Control
Plaque Index	1.93	2.44
Gingival Index	1.20	1.66

3. Turesky S, et al: Reduced plaque formation by the chloromethyl analogue of Vitamin C. *J Perio* 41:41-43, 1970.
4. Lobene RR, et al: A modified gingival index for use in clinical trials. *Clin Prev Dent* 8:3-6, 1986.

WARNER LAMBERT

*Caution: Do not give to children under 6. Active Ingredients: Alcohol 21.90% w/v, Eucalyptol 0.91% w/v, Thymol 0.063% w/v, Menthol 0.042% w/v.

PAAB
CCPP

"Listerine has been shown to help prevent and reduce supragingival plaque accumulation and gingivitis when used in a conscientiously applied program of oral hygiene and regular professional care. It has not been shown to have a therapeutic effect on periodontitis."

COUNCIL ON DENTAL THERAPEUTICS
AMERICAN DENTAL ASSOCIATION

ADA
ACCEPTED
American
Dental
Association



LISTERINE®

...First-line antimicrobial defense for your patients.

ACTINOMYCOTIC OSTEOMYELITIS

A. Ruprecht, DDS, MScD, FRCD(C)
Iowa City, Iowa
H. Umstadt
Marburg, W. Germany

ABSTRACT

An 83-year-old Caucasian female who developed actinomycosis at the site of an unerupted tooth in an otherwise edentulous mandible is presented. The treatment consisted of oral amoxicillin with clavulanic acid and radiation therapy after which the infection resolved.

SOMMAIRE

Voici le cas d'une Caucasienne âgée de 83 ans affligée d'une mycose ayant pour siège une dent enclavée dans la mandibule dégarnie de toutes ses autres dents. Pour combattre l'infection, on lui a administré par voie buccale de l'amoxicilline et de l'acide clavulanique en plus de la soumettre à des traitements de radiothérapie.

Osteomyelitis, a spreading destructive inflammatory disease of bone is not rare in the jaws. The number of apical inflammatory lesions due to infections of the dental pulp and leading to pulpal death, means that the jaws are more subject to infection than any other bones.

Most such lesions result from microorganisms found in the oral cavity, although some are due to the introduction of foreign microorganisms during traumatic injuries.

One group of organisms found in the oral cavity and pharyngeal region is Actinomyces.¹ Since actinomycotic osteomyelitis is uncommon,² and because the treatment used in this case combined the old with the new, we report the following patient.

Case Report

A.W., an 83-year-old Caucasian female, was referred on October 14, 1986, to the hospital attached to the oral surgical unit of the Dental School of Philipps University, Marburg, Germany, with a tentative diagnosis of osteomyelitis with chronic swelling and recurrent purulent discharge in the body of the left side of the mandible.

The history revealed that the patient was diabetic. She had had a myocardial infarct four years previously and an operation in 1985 for the repair of a femoral neck fracture. She was taking digoxin, isosorbide dinitrate, furosemide, glybu-

ride and enalapril. Approximately four weeks prior to admission a firm swelling arose in the mental region of the left side, from which pus drained spontaneously. This was followed by partial healing, with recent recurrence of the discharge. There was no history of recent trauma or surgery; the last tooth in the area had been extracted several years previously. The patient reported that there had been a space in the left mandibular premolar area, even before any tooth had been removed.

On examination the patient appeared to be slightly debilitated and malnourished. She had slight jaundice. There was dyspnea on exertion, cyanosis of the lips, and middle grade varicose veins. There was a 6 cm egg-size bluish-red swelling with sanguino-purulent discharge in the left anterior mandibular area. The swelling was adherent to the lower border of the mandible. The area was painful to pressure. One palpable painful lymph node was found in the right submandibular area. The patient was able to open her mouth adequately. She was edentulous and wore complete dentures. Intra-orally there was a 5 mm epulis fissuratum in the maxillary left lateral incisor area, a

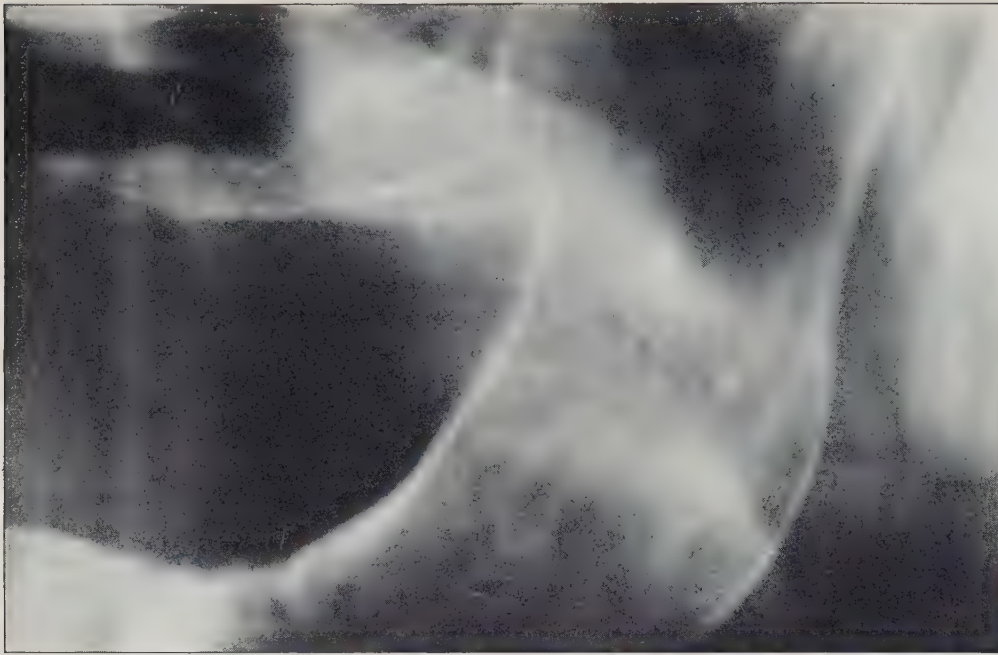


Fig. 1. The OPG revealed a radiopaque mass in the region of the discharging sinus.

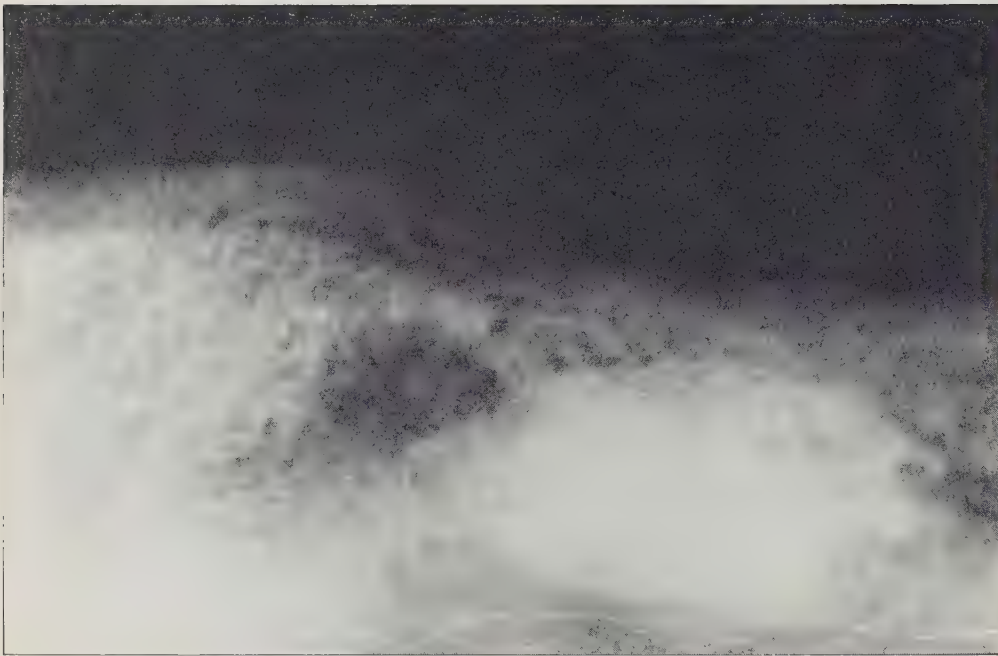


Fig. 2. The periapical radiograph shows that the radiopaque mass, surrounded by a follicle, is an unerupted tooth.

0.5 cm firm mass on the hard palate, a small epulis on the alveolar crest of the anterior mandible, and hyperplastic tonsils. There was a hard swelling in the left mandibular premolar-molar buccal area, painful to pressure.

Orthopantomographic (OPG), periapical and occlusal radiographs of the area were made. The OPG showed that there were no erupted teeth present, but revealed a radiopaque sclerotic mass in the region just distal to the left mental foramen (**Fig. 1**). On the intra-oral films the mass was consistent with an unerupted tooth with resorption of the crown (**Fig. 2**). The bone around the tooth was of mixed

radiolucency and radiopacity. On the occlusal view a buccal periosteal reaction was clearly seen (**Fig. 3**). It was not possible to determine if there was a sinus tract present because of superimposition of the canal to the mental foramen. The radiographic interpretation was osteomyelitis with sequestrum formation around an unerupted and partially resorbed tooth.

On October 15, under local anesthetic, a swab for culture and sensitivity and a biopsy specimen were taken. This revealed the presence of the so-called sulphur granules associated with actinomycosis.

On October 16 the dressing was changed. A Tine test was found to be positive. On the next day the wound was cleaned by lavage and the dressing was changed. The dressings were changed daily until October 31. Starting on October 21, the patient received two tablets of Augmentin (500 mg Amoxicillin and 125 mg clavulanic acid) three times daily, for three weeks. On October 23 she was referred to the radiotherapy clinic for consultation, and on October 27 started a course of radiotherapy for a total of 4 Gy (200 kVp, 6 × 8 cm field, 1 Gy every other day). On November 4, the tooth was removed together with the necrotic bone in the area. Healing was uneventful.

Discussion

Osteomyelitis, although far from rare, is not as common today as it was before the era of antibiotics, because of the ready availability of antimicrobials to combat a wide spectrum of organisms.³ When osteomyelitis of the jaws is seen, it is usually due to a small group of relatively clear-cut causes, chief among which are fracture with secondary infection, untreated pericoronitis, surgery in the presence of uncontrolled pericoronitis, radiotherapy in the presence of periodontal or periapical disease or surgery after radiotherapy to the area of the mandible. The organisms are usually those most often found in the jaws. One seldom finds actinomycotic osteomyelitis. One can speculate that this is due to a low prevalence of such an infection or due to its not being recognized as such.¹

Actinomyces are not rare in the mouth. They have been located in the crypts of the tonsils,^{4,5} in plaque, in the gingival crevices,² periodontal pockets,⁵ carious dentin,^{6,7} the pulp⁴ and periapical lesions.⁴ Actinomyces are anaerobic,⁷ and, as such, do not usually find conditions suitable for active growth. However, in the presence of other infections or diseases that lower the oxygen tension, favorable conditions may manifest themselves.³ Several of the cases reported appear to support this theory. There had been a pre-existing infection when actinomycosis was diagnosed. One could speculate that the organisms present first, through their aerobic growth, reduced the oxygen tension in the tissues.⁸ At this stage actinomyces, already present in the oral cavity, found conditions suitable for superinfection. Brown,¹ in his series, however, found such antecedent infections in only 81 of 181 patients. It was not possible to determine if our patient had been suffer-

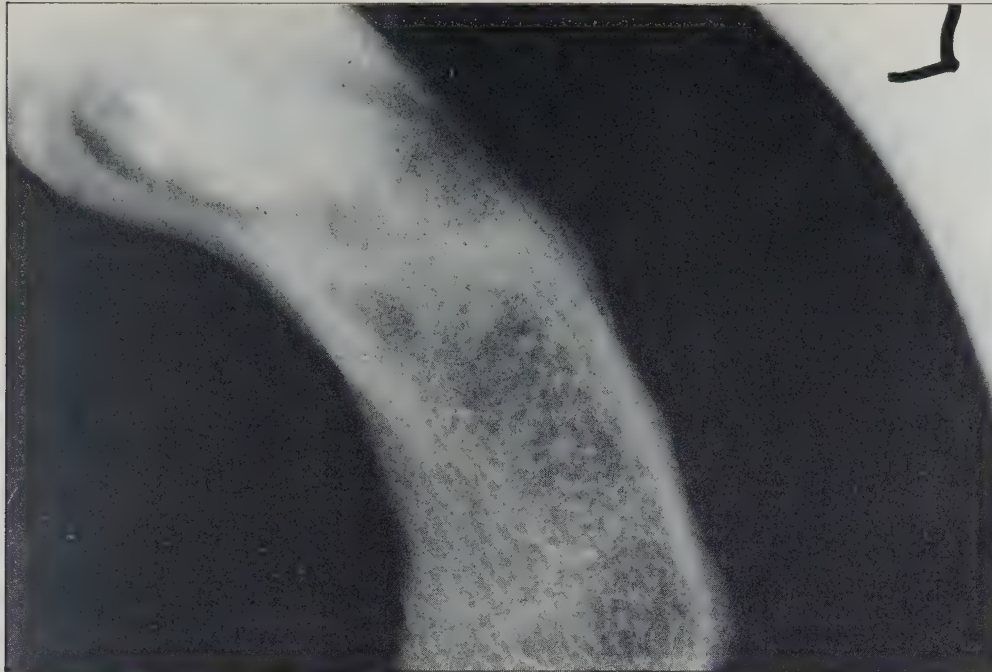


Fig. 3. The occlusal radiograph confirms the presence of a tooth, and a radiolucency suggestive of a sinus tract. A periosteal reaction is well seen on the buccal surface.

ing from actinomycosis for the four weeks that she had a clinically apparent infection, or if the actinomycosis was a more recent superinfection.

Previous treatment may also play a role. If antibiotics are used, but of the wrong type or for too short a time, the competitors are reduced so that actinomyces overgrow the infected area, producing a predominantly actinomycotic infection.

The presence of draining sinuses is also variable. Whereas our patient had a draining sinus, Brown¹ reports that only one third of subjects have such sinuses. Sulfur granules, which are considered to be of clinical importance in diagnosis⁷ and were present in our patient, are also not as commonly found as many textbooks suggest.¹ Gold and Doyne⁹ questioned the diagnostic value of sulphur granules since they are not present in many cases, Stenhouse and co-authors¹⁰ agreed, stating that sulfur granules were not often present in early cases.

As stated above, actinomycosis is not a common diagnosis. Actinomycotic infections are not diagnosed with any degree of regularity in the bones of the jaws.^{7,8,11} Although most cases of actinomycosis occur in the head and neck region, and the jaws are the most common site, actinomycotic osteomyelitis of the head and neck is rare.^{6,12} Lewis and coworkers¹³ reviewed 731 cases of anaerobic infections of bone in the world medical literature. Four hundred and seventy-one of these were due to Actinomyces. Two hundred and seventeen of

these were located in the jaws and a further 31 were in the skull. The mandible was involved four times as often as the maxilla. Stenhouse and co-authors¹⁰ state that even when actinomycosis is found on histological sections, there can be doubt about its pathogenic role in the disease.

Most authors feel that actinomycosis is more common in males than females and in young adults. As our case indicates, however, this does not rule out older females. This is in keeping with Krolls and co-workers⁴ statement that the fourth and fifth decade are more common, although our patient is considerably older.

Brown¹ reported that the common treatment is surgical, antibiotic or a combination of the two. He makes no mention of radiotherapy. Gold and Doyne⁹ also recommended antibiotic and surgical treatment. Gupta and coworkers¹⁴ reported a patient with actinomycosis who responded to antibiotic therapy supplemented by placement of a drain and dietary supportive therapy. Weese and Smith¹¹ reported 12 cases that responded to lengthy antibiotic therapy. They note, in their discussion, that radiotherapy was an adjunct to therapy before the mid-fifties. Consultation with the Radiation Oncology Division of the University of Iowa confirmed that no radiation therapy had been used for actinomycosis for at least the last 15 years (D. Hussey, Director). The five cases of actinomycotic osteomyelitis reported by Stenhouse and MacDonald⁷ resolved when treated surgi-

cally, with penicillin or erythromycin supplemental therapy in two patients. The present case is unusual in that together with the surgery and Augmentin, radiotherapy was included in the treatment. It is not possible to assess if the disease would have resolved without the radiotherapy. The literature, however, suggests that this would have been the case. Δ

The authors wish to thank Mrs. R. Klein, the dental librarian at the Philipps University of Marburg and Mr. J.A. Ruprecht for their assistance in acquiring the literature for review; Mr. R. Gils, dental photographer at the Philipps University of Marburg, and Mr. S. Hall, Manager, Dental Education Media, College of Dentistry, University of Iowa, for preparation of the illustrations.

Dr. Ruprecht is professor and director, Oral and Maxillofacial Radiology, Department of Oral Pathology and Diagnosis, College of Dentistry, University of Iowa, Iowa City, Iowa 52242, U.S.A.

Mr. Umstadt is a graduate dentist, a medical student and resident, Oral and Maxillofacial Surgery, Philipps University of Marburg, West Germany.

Reprint requests to Dr. Ruprecht.

References

1. Brown, J.R. Human actinomycosis. A study of 181 subjects. *Human Pathol* 4:319-330, 1974.
2. Walker, S., Middlekamp, J.N. and Sclaroff, A. Mandibular osteomyelitis caused by Actinomycosis Israelii. *Oral Surg, Oral Med, Oral Pathol* 51:243-244, 1981.
3. Silbermann, M., Chiminello, F.J., Doku, H.C. et al. Mandibular actinomycosis: report of case. *JADA* 90:162-165, 1975.
4. Krolls, S.O., Westbrook, S.D. and Hess, D.S. Actinomycosis as periapical pathology. Case report. *J Oral Med* 32:41-43, 1977.
5. Main, J.H.P. and MacPhee, I.T. Actinomycosis of the maxilla in relation to a periodontal abscess. *Oral Surg, Oral Med, Oral Pathol* 17:299-304, 1964.
6. Nathan, M.H., Radman, W.P. and Barton, H.L. Osseous actinomycosis of the Head and Neck. In: Bronner, M. and Bronner, M. (eds.). Actinomycosis. Ed. 2. Bristol, John Wright & Son, 1977, pp. 277-285.
7. Stenhouse, D. and MacDonald, D.G. Low grade osteomyelitis of the jaws with actinomycosis. *Int J Oral Surg* 3:60-64, 1974.
8. Kapsimalis, P. and Garrington, G.E. Actinomycosis of the periapical tissues. *Oral Surg, Oral Med, Oral Pathol* 26:374-380, 1968.
9. Gold, L. and Doyne, E.E. Actinomycosis with osteomyelitis of the alveolar process. *Oral Surg, Oral Med, Oral Pathol* 5:1056-1063, 1952.
10. Stenhouse, D., MacDonald, D.G. and MacFarlane, T.W. Cervico-facial and intra-oral actinomycosis: A 5-year retrospective study. *Br J Oral Surg* 13:172-182, 1975.
11. Weese, W.C. and Smith, I.M. A study of 57 cases of actinomycosis over a 36-year period. *Arch Intern Med* 135:1562-1568, 1975.
12. Wilding, K. and Nade, S. Actinomycosis of bone. *Aust N Z J Surg* 45:61-65, 1975.
13. Lewis, R.P., Sutter, V.L. and Finegold, S.M. Bone infections involving anaerobic bacteria. *Medicine* 57:279-305, 1978.
14. Gupta, D.S., Gupta, M.K. and Naidu, N.G. Mandibular osteomyelitis caused by Actinomycosis Israelii. *J Max-Fac Surg* 14:291-293, 1986.

NEW FROM ESPE Ketac-Silver

A precapsulated glass ionomer/silver restorative for posterior and core build-ups for selected Class I and II restorations and for the Ketac-Etch technique.

Ketac-Silver bonds to dentin and enamel and provides a tight seal at the margins.

It is also bio-

compatible and releases fluoride ions into adjacent tooth structure.

Ketac-Silver is radiopaque and contains no mercury.

In the Ketac-Etch technique the restorative material is applied to cover dentinal areas in the posterior cavity. In only

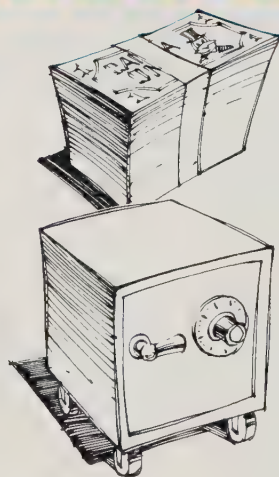
three minutes it is acid etched so it can accept a build-up of composite material, providing an esthetic restoration with both a chemical and mechanical bond.

ESPE Ketac-Silver. Another fine product from your Dental Support Team.

**Ash
Temple**

LIMITED
Canadians serving
Canadians.

Early Bird says, "You can have growth and security, with the CDA RSP"



GROWTH

when you invest in the:

- Common Stock Fund
- Balanced Fund

SECURITY

when you choose:

- Bond and Mortgage Fund (Fixed Income)
- Money Market Fund
- GIC Fund (Guaranteed Fund)

Have both by placing your investment in a combination of the Funds.

IT'S YOUR PLAN! IT'S YOUR FUTURE!



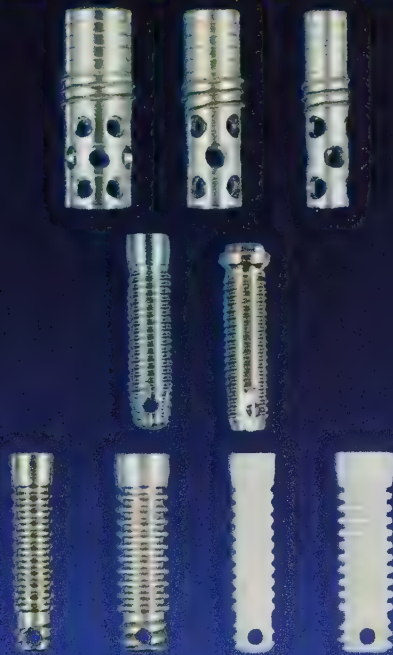
For further information or answers to any RSP question, call CDSPI's Retirement Service Department, anytime, toll-free:

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807
1-800-268-3411 Quebec and Ontario except Area Code 807
497-7117 Metro Toronto

CDA RSP

Administered by CDSPI, 2 Lansing Square, Suite 600, Willowdale, Ontario M2J 4Z3.

INDEPENDENT CLINICAL REPORT CITES CORE-VENT ADVANTAGES



"Complete System"
"Moderate Cost"
"Clinical Success"

Clinical Research Associates of Provo, Utah, reported on the Core-Vent System of Osseointegrated Implants in its March, 1988, newsletter. The section entitled "Advantages" is quoted verbatim below:

- A. Complete system.** Other products available address specific aspects of implant procedures, but none offer broad range of Core-Vent System.
- B. Moderate cost.** Considerably less than Branemark, and less than most other systems also.
- C. Company responds rapidly to dental clinical needs.** New designs and changes in old designs have been developed as practitioners expressed need.
- D. Surgical procedures are made simple.** Many sizes and types of implants offer range of alternatives and accommodate most clinical needs. Clinical success of system throughout profession demonstrates concept is relatively easy to understand and use.
- E. Adapts well to both fixed and removable prosthodontic needs.** Bendable and castable abutments allow angulation of coronal positions and choice of 12 threaded and 10 cemented abutment options for Core-Vent, Screw-Vent and Micro-Vent. Numerous designs allow versatility necessary to adapt implant to individual patient needs.

Core-Vent Implant Training Programs

TORONTO
December 9 & 10

Two-day Surgical/Prosthetic Course

- Full Tuition Rebate
- Two Hands-on Sessions
- Second Day Prosthetic Option

Tuition

Two-day Surgical/Prosthetic Course	\$600 U.S.
Prosthetic Course Only (second day)	\$200 U.S.

FOR REGISTRATION INFORMATION
CALL THE CORE-VENT EDUCATION DEPARTMENT
1-800-551-3838

F. Broad education resources offered, but not requisite for purchase. Include videos for clinician and patient, hands-on and lecture courses, annual symposium and manuals.

G. Primate studies show Core-Vent comparable to well established Branemark System. (J Dent Res vol 67, March '88-[1] Boyne, et al, Abs. #557, p. 182; and [2] Beirne, et al, Abs #558, p. 182.)



CORE-VENT®

C O R P O R A T I O N

15821 Ventura Boulevard, Suite 420, Encino, California 91436
(818) 793-1517 • FAX (818) 789-3928 • U.S. 800-551-3838
No. CA 800-451-4900 • So. CA 800-346-5222 • In Canada 800-263-1644

FELLOWSHIPS IN GERONTOLOGICAL HEALTH RESEARCH

Up to two Fellowships per year are to be awarded to Canadian citizens and permanent residents starting in July, 1989 for training in gerontological health research. Fellows must be enrolled in a Masters of Science or Doctor of Philosophy graduate program or equivalent approved activities in the Faculty of Health Sciences at McMaster University.

Eligibility criteria for candidates are as follows:

Physicians, nurses, pharmacists, physiotherapists and occupational therapists, social workers, or others who:

- 1) are fully trained in their specific discipline and have experience in gerontological health care,
- 2) have the credentials to pursue an academic career in health care for elderly persons with a strong research component,
- 3) are able to identify an acceptable faculty member at McMaster willing to act as research supervisor.

Each Fellow will commit his/her time fully to research training and related activities at McMaster University. The length of the Fellowship is negotiable to a maximum of two years.

Stipends will depend on qualifications and experience and will be similar to those offered by national funding agencies.

**Deadline for application for the
Fellowships beginning July 1st, 1989 is:
FEBRUARY 15TH, 1989**

To obtain an application form write to:

**Fellowship Committee
The R. Samuel McLaughlin Centre
for Gerontological Health Research
McMaster University Health Sciences Centre
Chedoke Campus, Building #74
Box 2000, Station "A"
Hamilton, Ontario
L8N 3Z5**

Dentist — Jamaica

CUSO offers you a challenge. The chance of a lifetime. Two years living in another culture and an opportunity to work with others who are striving to improve their lives. It's hard work, but rewarding.

We are seeking a dentist to work with a community health care organization in Jamaica. The successful applicant will be patient, resourceful, sensitive to the needs of a different culture, and have a background in preventive dentistry.

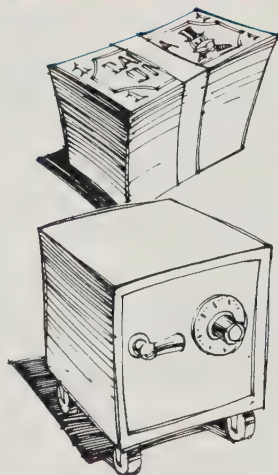
We need someone who can work with limited resources and teach personal oral hygiene to child patients.

The salary is modest but covers overseas living costs and there is a generous benefits package. Interested in joining us? Then send your résumé to: CUSO, BH-13,

**135 Rideau Street,
Ottawa, Ontario
K1P 5H5.**



“Avec le RER de l'ADC, croissance et sécurité vont de pair.”



CROISSANCE

quand vous placez dans :

- Le Fonds d'actions ordinaires
- Le Fonds mixte

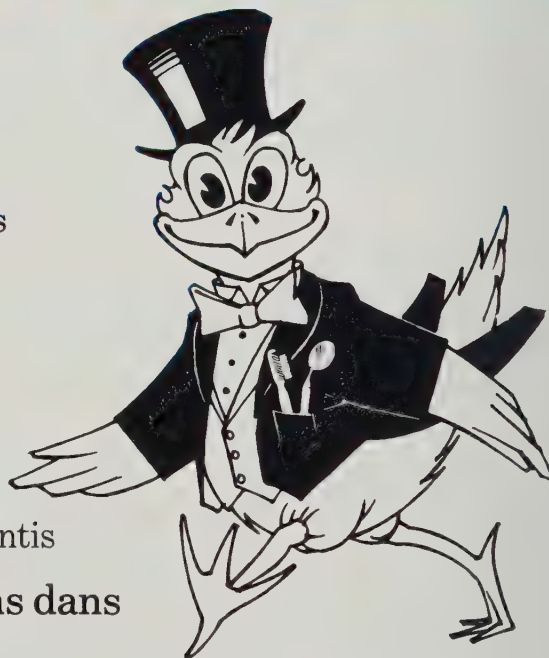
SÉCURITÉ

quand vous choisissez :

- Le Fonds d'obligations et d'hypothèques (revenu fixe)
- Le Fonds d'effets financiers
- Le Fonds de placements garantis

**Optez pour les deux en plaçant vos cotisations dans
une combinaison de fonds.**

C'EST VOTRE RÉGIME ! C'EST VOTRE AVENIR !



RER ADC

Pour de plus amples renseignements ou pour toute question sur le RER contacter le Service planification retraite du CDSPI, à n'importe quelle heure, sans frais :

1.800.268.54.18

Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11

Québec et Ontario, sauf pour la région avec l'indicatif régional 807

497.71.17

Toronto et environs

Régime administré par le CDSPI, 2, square Lansing, Bureau 600, Willowdale, Ontario M2J 4Z3

CARACTÉRISTIQUES ÉPIDÉMIOLOGIQUES

de la carie dentaire chez les écoliers québécois
de 7-8-11-12 ans en 1983-1984

Martin Payette, DDS

Réjean Plante, DDS

Jean-Bernard L'Heureux, DDS, DHP

SOMMAIRE

Cet article décrit les principales caractéristiques de la carie dentaire chez les écoliers québécois de 7-8-11-12 ans en 1983-84. Les données proviennent de l'Enquête Santé Dentaire Québec réalisée en 1983-84 chez 24,056 enfants de ces âges. Les principaux points qui en ressortent sont: à 7-8 ans, la prévalence de la carie en dentition temporaire s'établit à 4.41; en dentition permanente à 11-12 ans, le CAOD se situe à 3.80; le niveau de traitement par obturation en dentition temporaire s'est amélioré passant de 31 pour cent en 1977 à 71 pour cent en 1984 et en dentition permanente en 1984 il atteint 75 pour cent à 11-12 ans; la prévalence de la carie est associée à la zone de résidence, à l'ethnie et à la langue parlée à la maison; l'émergence de groupes à risque élevé de développer la carie; les dents les plus touchées par la carie sont les 1^{res} et les 2^{es} molaires temporaires et les 1^{res} molaires permanentes; les faces les plus touchées par la carie sont les faces occlusales.

ABSTRACT

The principal characteristic of dental caries indices of 7-8-11-12 year old Québec

schoolchildren in 1983-1984 are reported. The data were generated by a province wide probability sample of 24,056 children in 1983-1984. The principal conclusions are: caries prevalence for deciduous teeth of 7-8 year old children is 4.41; at 11-12 year old, the DMFT index is 3.80; the treatment level has jumped from 31 per cent in 1977 to 71 per cent in 1984 in primary dentition and in permanent dentition in 1984 it reaches 75 per cent; a relationship between residential status, ethnic groups, mother tongue and the DMFT index; the emergence of limited groups of high risk children; the dental caries prevalence is higher on first and second deciduous molars and first permanent molars; the DMFS is higher on occlusal surfaces.

Introduction

La province de Québec a mis en place en 1973 un réseau public de santé dentaire communautaire. Ce réseau a pour but d'assurer la prestation de services dentaires préventifs de groupe à la population infantine du Québec. À la même période l'état instaura un régime

individuel de soins curatifs et préventifs défrayé par la régie de l'assurance maladie du Québec dont les services sont principalement rendus en bureau privé.

Pendant la dernière décennie, de nombreuses études épidémiologiques furent réalisées par plusieurs des 32 départements de santé communautaire (DSC) afin d'apprécier l'influence de ces mesures sur l'état de la santé dentaire des écoliers québécois.^{1,2,3,4,5} Toutefois, ces études se situaient au niveau local et les méthodes d'enquête n'étaient pas standardisées. Pendant cette période, seules deux études, celle de Stamm en 1977⁶ et d'Infante-Rivard et Payette⁷ en 1978, ont étudié de larges populations tout en s'assurant d'une valeur méthodologique essentielle.

En 1983-1984, les départements de santé communautaire et le Ministère des Affaires Sociales (MAS) décidèrent de la tenue d'une vaste enquête sur tout le territoire québécois chez les enfants âgés de 7-8 ans, 11-12 ans et de 13-14 ans. Les principaux objectifs visés furent de: a) créer une banque de données valides qui sera le point de départ d'une surveillance (monitoring) de la santé dentaire; b) comparer les données recueillies aux données québécoises antérieures, en particulier chez les enfants de sept ans et de 13-14 ans; c) situer la condition dentaire

TABLEAU 1

Échantillon Enquête santé dentaire Québec 1983-1984

Écoles primaires – secteur public

		7-8 ans	11-12 ans
Nombre d'enfants examinés		12070	11986
Imprécision de l'échantillon pour un niveau de confiance de 95%	En valeur absolue du caod	± 0.06	
	En pourcentage du caod	± 1.5%	
	En valeur absolue du CAOD		± 0.05
	En pourcentage du CAOD		± 1.3%
Intervalle de confiance pour un niveau de confiance de 95%		4.34 < 4.41 < 4.47	3.74 < 3.80 < 3.85
		caod	CAOD

de ces écoliers dans un contexte nord-américain et international.

Méthodologie

Deux rapports^{8,9} et une publication antérieure¹⁰ détaillent la méthodologie utilisée pour cette étude. Pour les niveaux scolaires de 2^e et 6^e année, un échantillon représentatif provincial de 25,644 enfants fut sélectionné, garantissant ainsi la représentativité dans chaque Centre local de services communautaires (C.L.S.C.). Dans chacune de ces strates un échantillon aléatoire simple à allocation optimale fut tiré dans toutes les écoles primaires en respectant le poids relatif de chaque école dans le C.L.S.C. Les examens furent effectués par 46 dentistes enquêteurs, assistés d'un inscripteur de données, à l'aide d'une chaise portative ou d'une tête portative, d'une lumière dentaire portative "Rolux Fibre Optic", de miroirs plans #4, d'explorateurs #5 et d'une sonde périodonte. Les 46 dentistes ont participé à un calibrage en trois étapes d'une durée de 9 jours. L'indice CAO face en utilisant les critères suggérés par l'O.M.S.¹¹⁻¹² pour l'étude de la carie, l'indice de Russell modifié¹³⁻¹⁴ pour l'étude du périodonte ainsi que l'indice de priorité de traitement de Grainger¹⁵ pour le besoin de traitement orthodontique furent employés pour la collecte des données. Ces données furent traitées au centre de calcul de l'Université de Montréal en se servant principalement des programmes du logiciel SPSS (Statistical Package for the Social Sciences). Les principaux tests statistiques utilisés dans l'analyse des données furent le student t, l'analyse de variance (ANOVA) et l'analyse de covariance (ANCOVA).

Résultats

La consistance entre examinateurs atteinte à la fin de la standardisation fut excellente. Sur une base individuelle, l'utilisation de la statistique Kappa montre que pour l'ensemble des faces CAO de même que pour les faces saines, la force de concordance est presque parfaite, qu'elle varie de modérée à presque parfaite pour les faces cariées et de substantielle à parfaite ou presque parfaite pour les faces extraites et les faces obturées. La consistance intra-examineur s'est montrée très adéquate en ce qui concerne la carie et un niveau d'accord interne s'échelonnant entre 93.9 pour cent et 99.8 pour cent a été trouvé chez les dentistes pris individuellement.

Le **Tableau 1** décrit le nombre d'enfants examinés à 7-8 ans et à 11-12 ans ainsi que la précision des estimateurs pour un niveau de confiance de 95 pour cent. La taille des échantillons est très large et la marge d'erreur réelle des estimateurs caod et CAOD qui se situe à ± 1.5 pour cent et ± 1.3 pour cent du caod et du CAOD est excellente. À 7-8 ans pour un niveau de confiance de 95 pour cent, l'intervalle de confiance du caod s'établit à 4.34 < 4.41 < 4.47 et celui du CAOD chez les 11-12 ans à 3.74 < 3.80 < 3.85.

Les **Tableaux 2** et **3** donnent les détails des composantes de l'indice caod à 7-8 ans et de l'indice CAOD à 11-12 ans selon la zone de résidence et la langue parlée à la maison. Ces moyennes sont ajustées par une analyse de covariance (ANCOVA) visant à neutraliser l'effet de certains cofacteurs. On note que, quel que soit l'âge, ce sont les enfants dont la langue parlée à la maison est l'anglais qui

ont l'indice global le plus favorable. Les enfants domiciliés en zone métropolitaine ont une prévalence inférieure de la carie en dentition temporaire à 7-8 ans mais, en dentition permanente à 11-12 ans, on n'observe pas de différence avec les enfants des autres zones de résidence.

Au **Tableau 4**, on retrouve les moyennes ajustées de la prévalence de la carie sur les dents permanentes selon le statut du fluor systémique dans le C.L.S.C. On constate qu'à tous les âges les moyennes du CAOD les moins élevées se retrouvent dans les régions où la fluoruration systémique est disponible.

Dans l'analyse de la prévalence de la carie sur les faces des dents (**Tableaux 5-6**), on remarque qu'à 7-8 ans l'expérience de la carie en dentition temporaire est plus élevée chez les garçons, alors qu'en dentition permanente à 11-12 ans, ce sont les filles qui présentent la moyenne du CAOF la plus forte. Quel que soit l'âge dans les deux dentitions, les écoliers qui résident en zone métropolitaine ont toujours la prévalence de la carie la moins élevée.

Le **Tableau 7** expose la situation de la prévalence de la carie sur les faces selon certaines variables. Par exemple, on remarque qu'à tous les âges les enfants qui ont déclaré s'être brossé les dents la veille de l'examen ont une expérience de la carie moins élevée que ceux qui ont affirmé le contraire. De même, on note que plus l'indice de débris augmente, plus la prévalence de la carie progresse.

La série de **Tableaux 8 à 10** présente la prévalence de la carie selon le type de dents et de faces atteintes. On constate que dans les deux dentitions l'attaque carieuse se fait principalement sur les faces occlusales, qu'à 7-8 ans les premières molaires temporaires sont les plus touchées alors qu'en dentition permanente, à tous les âges la carie se concentre principalement sur la première molaire.

Enfin le **Tableau 11** est consacré spécifiquement à la première molaire permanente où l'on retrouve la moyenne et le pourcentage du CAOF global selon le type de faces atteintes par la carie.

Discussion

Tel qu'attendu, à 7-8 ans la prévalence de la carie en dentition temporaire est inférieure chez les enfants domiciliés en zone métropolitaine à celle des écoliers résidant en zone urbaine et en zone semi-urbaine ou rurale. À 11-12 ans en dentition permanente cette différence favorable s'est dissoute et les enfants de toutes les zones de résidence expérimentent une préva-

TABLEAU 2

Moyennes ajustées du caod et de ses composantes
Enquête santé dentaire Québec 1983-1984 – secteur scolaire public
Écoliers de 7 et 8 ans – dentition temporaire

Variables	Nombre de sujets	c	a	o	caod
		Moyenne ajustée	Moyenne ajustée	Moyenne ajustée	Moyenne ajustée
ZONE ¹					
Métropolitaine	2344	0.91	0.25	2.67	3.82
Urbaine	6017	1.08	0.36	2.91	4.33
Semi-urbaine/rurale	3682	1.42	0.63	2.87	4.92
Signification de la différence entre les moyennes		0.001	0.001	0.01	0.001
LANGUE PARLÉE À LA MAISON					
Français	10558	1.15	0.42	2.88	4.44
Anglais	898	1.00	0.34	2.31	3.64
Autres	591	1.42	0.53	3.09	5.02
Signification de la différence entre les moyennes		0.001	0.033	0.001	0.001
Québec	12057	1.15	0.42	2.85	4.41

Moyennes ajustées par une analyse de covariance (ANOCO) pour le sexe, le revenu familial du CLSC, la race, l'origine ethnique du père et soit la zone de résidence (métropolitaine, urbaine, semi-urbaine/rurale) ou la langue parlée à la maison.

¹ 12 043 sujets ont pu être classifiés selon cette variable.

TABLEAU 3

Moyennes ajustées du CAOD et de ses composantes
Enquête santé dentaire Québec 1983-1984 – secteur scolaire public
Écoliers de 11 et 12 ans – dentition permanente

Variables	Nombre de sujets	C	A	O	CAOD
		Moyenne ajustée	Moyenne ajustée	Moyenne ajustée	Moyenne ajustée
ZONE					
Métropolitaine	2652	0.82	0.06	2.81	3.69
Urbaine	5723	0.83	0.10	2.90	3.83
Semi-urbaine/rurale	3577	0.97	0.14	2.76	3.87
Signification de la différence entre les moyennes		0.001	0.001	0.029	0.083
LANGUE PARLÉE À LA MAISON					
Français	10220	0.89	0.10	2.86	3.84
Anglais	1106	0.70	0.08	2.62	3.40
Autres	627	0.91	0.12	2.98	4.01
Signification de la différence entre les moyennes		0.004	0.255	0.005	0.001
Québec	11953	0.87	0.10	2.84	3.81

Moyennes ajustées par une analyse de covariance (ANOCO) pour le sexe, le revenu familial du CLSC, la race, l'origine ethnique du père et soit la zone de résidence (métropolitaine, urbaine, semi-urbaine/rurale) ou la langue parlée à la maison.

lence de la carie équivalente. Notons aussi qu'à 7-8 ans le caod et à 11-12 ans le CAOD sont plus élevés chez les écoliers qui parlent une autre langue que le français ou l'anglais à la maison. De plus, la prévalence de la carie en dentition temporaire et en dentition permanente montre

un différentiel très significatif selon que les enfants ont déclaré s'être brossé ou non brossé les dents la veille de l'examen. Il semble donc qu'au Québec l'habitude du brossage est associée à l'expérience de la carie de nos écoliers de ces âges. Nous avons noté la même caractéristique pour

la fréquence du brossage. L'analyse des données nous permet aussi de souligner la présence d'une association significative entre l'intensité de la prévalence de la carie sur les dents et l'intensité de l'indice de débris aux âges investigués.

Quant aux besoins et niveaux de traite-

TABLEAU 4

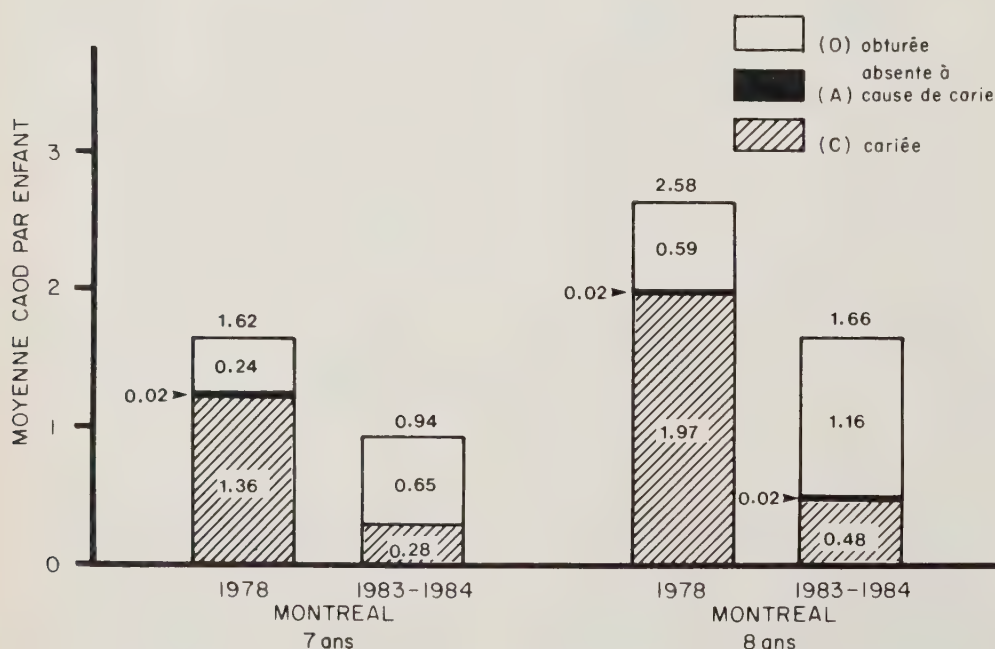
Comparaison de la prévalence de la carie (moyennes ajustées) selon le statut du fluor dans le CLSC
Enquête santé dentaire Québec 1983-1984
Secteur scolaire public – dentition permanente

ÂGE	FLUOR SYSTÉMIQUE	PRÉVALENCE DE LA CARIE – CAOD	
		Moyenne ajustée	Différences interrégionales entre les moyennes ajustées
7 ans	Régions sans fluor	1.03	
	Régions avec fluor	0.77	25.2%
	Signification (ANOCO)	0.001	
8 ans	Régions sans fluor	1.65	
	Régions avec fluor	1.10	33.3%
	Signification (ANOCO)	0.001	
7 et 8 ans	Régions sans fluor	1.21	
	Régions avec fluor	0.90	25.6%
	Signification (ANOCO)	0.001	
11 ans	Régions sans fluor	3.64	
	Régions avec fluor	3.00	17.5%
	Signification (ANOCO)	0.001	
12 ans	Régions sans fluor	4.58	
	Régions avec fluor	3.55	22.4%
	Signification (ANOCO)	0.001	
11 et 12 ans	Régions sans fluor	3.98	
	Régions avec fluor	3.25	18.3%
	Signification (ANOCO)	0.001	

Moyennes ajustées par une analyse de covariance (ANOCO) pour le sexe, la langue parlée à la maison, la zone de résidence (métropolitaine, urbaine, semi-urbaine ou rurale), le revenu familial du CLSC et l'indice de débris.

FIGURE 1

Évolution de la prévalence de la carie sur les dents permanentes chez les écoliers montréalais entre 1978 et 1983-1984



L'échantillon montréalais de 1983-1984 est constitué d'un sous-échantillon de l'échantillon global de l'Enquête Santé Dentaire Québec 1983-1984

ments de la carie en dentition temporaire, les enfants des zones métropolitaines et urbaines ont un plus faible besoin de traitements et une mortalité dentaire inférieure alors que ceux des zones semi-urbaines ou rurales ont un plus faible niveau de traitement. En dentition permanente chez les 11-12 ans, les moyennes des dents non traitées et extraites sont aussi plus faibles en zones métropolitaines et urbaines mais, en ce qui concerne le taux d'obturations, peu de différences apparaissent entre les zones de résidence. Il convient de mentionner que pour l'ensemble de la population québécoise l'accessibilité aux soins curatifs varie de région en région ce qui souvent influe sur le type de traitements nécessités. Dans les deux dentitions les enfants qui parlent français ou une autre langue (que le français ou l'anglais) ont plus de dents cariées à faire traiter, plus de dents extraites mais aussi plus de dents obturées que ceux de la langue usuelle à la maison est l'anglais.

Les moyennes ajustées du CAO dent dans les deux catégories extrêmes de la disponibilité et de l'accès au fluorure systémique dans les régions montrent que l'expérience de la carie est toujours plus élevée dans les régions sans fluor, la différence dans les taux variant de 25 pour cent à 7-8 ans à 18 pour cent à 11-12 ans. Quoique d'autres facteurs que ceux étudiés ont aussi une grande influence sur la variance de la carie, la variation de la prévalence ajustée de la carie constatée entre les régions avec ou sans fluor souligne l'apport bénéfique de cette mesure préventive.

Le déclin de la prévalence de la carie dentaire est un phénomène bien documenté dans plusieurs pays industrialisés depuis les 10 à 20 dernières années. À Montréal, entre 1978-1984, le CAOD à sept ans a chuté de 42 pour cent, passant de 1.62 à 0.94. À l'échelle de la province, à l'âge de sept ans on observe une réduction de 18 pour cent de la prévalence de la carie en dentition permanente entre 1977 et 1984.

Lorsque nous comparons la diminution de la prévalence de la carie au Québec dans les dernières années avec celle de quelques pays à forte prévalence,¹⁶ on note que le Québec se situe dans la même tendance générale et obtient un pourcentage de diminution similaire (-54.2 pour cent entre 1972 et 1984 chez les écoliers de 12 ans versus -48 pour cent, -59 pour cent, -63 pour cent, -56 pour cent). Pour les écoliers de 12 ans, nous parvenons dans les années 1983-84, comme ces pays (Norvège, Nouvelle-Zélande, Finlande, Pays-Bas) à la zone de

TABLEAU 5

Prévalence de la carie sur les faces des dents temporaires et permanentes par sexe et par zone de résidence
Enquête santé dentaire Québec 1983-1984 – secteur scolaire public
Écoliers de 7 et 8 ans

SEXE	N PONDÉRÉ	MOYENNE SUR LES FACES TEMPORAIRES				MOYENNE SUR LES FACES PERMANENTES			
		C	A	O	CAO (ET)	C	A	O	CAO (ET)
Féminin	5940	1.91	1.93	7.04	10.89 (11.89)	.54	.03	1.22**	1.80 (2.60)**
Masculin	6129	2.30**	2.11	7.22	11.64 (12.48)**	.53	.02	1.00	1.56 (2.47)
ZONE									
Métropolitaine	2350	1.78	1.37	6.55	9.72 (11.55)	.43	.02	1.04	1.49 (2.40)
Urbaine	6038	1.92	1.72	7.32	10.97 (11.87)	.54	.02	1.18	1.75 (2.58)
Semi-urbaine ou rurale	3682	2.60	2.94	7.20	12.75 (12.94)	.60	.03	1.05	1.69 (2.55)
QUEBEC	12070	2.10	2.02	7.13	11.27 (12.20)	.54	.02	1.11	1.68 (2.54)
ANOVA ENTRE LES ZONES		F = 33.95 P ≤ .0000	F = 58.04 P ≤ .0000	F = 6.49 P ≤ .001	F = 48.34 P ≤ .0000	F = 13.40 P ≤ .0000	F = 1.54 P ≤ .21	F = 5.66 P ≤ .003	F = 8.84 P ≤ .0002
(ET) = ÉCART-TYPE * = DIFFÉRENCE SIGNIFICATIVE ENTRE LES SEXES A P ≤ 0.05 ** = DIFFÉRENCE SIGNIFICATIVE ENTRE LES SEXES P ≤ 0.01									

TABLEAU 6

Prévalence de la carie sur les faces des dents temporaires et permanentes par sexe et par zone de résidence
Enquête santé dentaire Québec 1983-1984 – secteur scolaire public
Écoliers de 11 et 12 ans

SEXE	N PONDÉRÉ	MOYENNE SUR LES FACES TEMPORAIRES				MOYENNE SUR LES FACES PERMANENTES			
		C	A	O	CAO (ET)	C	A	O	CAO (ET)
Féminin	6059	.45	.63	1.88	2.98 (5.71)	1.15	.55**	5.53**	7.24 (6.37)**
Masculin	5926	.65**	.97**	2.62**	4.25 (7.19)**	1.13	.43	4.80	6.37 (5.77)
ZONE									
Métropolitaine	2655	.47	.46	1.97	2.90 (5.57)	1.03	.32	4.92	6.27 (5.82)
Urbaine	5753	.55	.68	2.43	3.66 (6.49)	1.09	.46	5.34	6.91 (6.10)
Semi-urbaine ou rurale	3578	.61	1.25	2.18	4.05 (7.12)	1.30	.65	5.08	7.04 (6.26)
QUEBEC	11986	.55	.80	2.25	3.61 (6.51)	1.14	.49	5.17	6.81 (6.10)
ANOVA ENTRE LES ZONES		F = 5.68 P ≤ .003	F = 38.41 P ≤ .0000	F = 10.24 P ≤ .0000	F = 24.19 P ≤ .0000	F = 9.46 P ≤ .0001	F = 16.44 P ≤ .0000	F = 7.59 P ≤ .0005	F = 13.79 P ≤ .0000
(ET) = ÉCART-TYPE * = DIFFÉRENCE SIGNIFICATIVE ENTRE LES SEXES A P ≤ 0.05 ** = DIFFÉRENCE SIGNIFICATIVE ENTRE LES SEXES P ≤ 0.01									

prévalence située entre 3.3 et 4.4. Ce n'est que lorsque nous nous comparons à la tendance des pays à faible prévalence de la carie que nous manifestons un différentiel défavorable. Déjà dans les années 71 à 73, ces pays¹⁶ avaient une prévalence semblable à celle que les enfants des pays à forte prévalence de la carie n'ont réussi à atteindre qu'en 1982-84. Pour les pays à faible prévalence de la carie, le progrès ne s'est pas non plus arrêté dans les années 72 et une diminution de 30 à 41 pour cent s'est

aussi produite entre 1971 et 1983 dans les pays comme les États-Unis, l'Australie, le Royaume-Uni et la Suède.

L'Enquête Santé Dentaire Québec 1983-84 fut la première enquête à analyser la prévalence de la carie par type de faces atteintes dans la population québécoise. Pour l'ensemble des faces, les écoliers québécois de sept et huit ans ont en 1984 une prévalence de la carie en dentition temporaire (caof) de 11.27. En dentition permanente à ces âges la moyenne du CAO s'établit à 1.69 et à 11-12 ans,

la prévalence de la carie en dentition permanente atteint 6.81. La majorité des études récentes qui démontrent une diminution de la prévalence de la carie dentaire dans les populations d'enfants des pays industrialisés d'Amérique du Nord et d'Europe, décrivent aussi une variation du schéma épidémiologique de l'attaque carieuse caractérisée par l'émergence de groupes à risque élevé de développer la carie. Avec les années une fraction donnée de toutes les faces CAO est trouvée dans une fraction de plus en plus petite

TABLEAU 7

Prévalence de la carie sur les faces des dents temporaires et permanentes selon certaines variables – Enquête santé dentaire Québec 1983-1984
Secteur scolaire public

		7 ET 8 ANS		7 ET 8 ANS		11 ET 12 ANS	
		caof temporaire	test ¹ statistique P ≤	CAOF permanente	test ¹ statistique P ≤	CAOF permanente	test ¹ statistique P ≤
SEXE	Féminin	10.89		1.80		7.24	
	Masculin	11.64	0.001	1.56	.000	6.37	.000
LANGUE PARLÉE À LA MAISON	Français	11.65		1.70		7.03	
	Anglais	7.05	.0000	1.29	.0000	5.09	.0000
	Autres	11.07		1.87		6.40	
BROSSAGE DENTAIRES	Oui	10.53		1.58		6.43	
	Non	13.67	.000	1.99	.000	7.86	.000
SOIE DENTAIRE	Jamais	11.45		1.67		6.84	
	1-3 fois	9.94		1.72	0.44	6.71	0.47
SEMAINE	4 fois +	9.35	.0000	1.83	*	6.63	*
	0	7.10		0.64		5.57	
INDICE DE DÉBRIS PAR CATÉGORIE	0.01 – 0.49	10.12		1.17		6.23	
	0.5 – 0.99	9.61		1.49		6.41	
	1.0 – 1.49	10.78	.0000	1.60	.0000	6.66	.0000
	1.5 – 1.99	11.52		1.78		6.93	
	2.0 – 2.49	12.76		1.90		7.97	
	2.5 – 3.00	13.70		2.11		8.81	

¹ = Les tests statistiques sont le student t ou l'ANOVA.
* = Non significatif

TABLEAU 8

Prévalence de la carie selon le type des faces atteintes
Enquête santé dentaire Québec 1983-1984
Secteur scolaire public

Type de faces	Temporaires 7 – 8 ans		Permanent 11 – 12 ans	
	caof	pourcentage du caof global	CAOF	pourcentage du CAOF global
Faces Occlusales	3.76	33.3%	3.34	49.0%
Buccales	1.44	12.7%	1.11	16.2%
Linguales	1.47	13.0%	1.09	16.0%
Mésiales	2.20	19.5%	0.86	12.6%
Distales	2.39	21.2%	0.39	5.7%
Toutes les faces	11.27 ^a	100.0% ^a	6.81 ^a	100.0% ^a
Nombre de sujets	12070		11985	

^a Erreur d'arrondissement.

d'enfants. Ce changement que Marthaler a nommé la "polarisation" a aussi été identifié dans le "National Preventive Dentistry Demonstration Program". Le Québec ne se démarque pas des pays industrialisés et le phénomène de l'émergence de groupes à risque est aussi actif chez nous. Ainsi, à 11-12 ans, les 30,2 pour cent d'écoliers avec le CAO

face le plus élevé accaparent 61 pour cent de toute la carie du groupe et leur taux CAOF est deux (2) fois plus élevé que celui de l'échantillon total.

L'analyse du schéma épidémiologique de l'attaque carieuse selon le type de faces atteintes nous permet de constater que chez les écoliers de 7-8 ans, en dentition temporaire, se sont les faces occlusa-

les suivies des faces distales et mésiales qui sont les plus touchées par la carie. En dentition permanente à ces âges, l'attaque carieuse se fait aussi principalement sur les faces occlusales mais contrairement à ce que l'on retrouve en dentition temporaire, l'intensité de la carie est plus forte sur les faces buccales et les faces linguales que sur les faces mésiales et distales. Spécifions qu'à 7-8 ans, la carie se concentre presque exclusivement sur les 1^{res} et 2^{es} molaires temporaires (92 pour cent du caof) ainsi que sur la 1^{re} molaire permanente (98 pour cent du CAOF). Cependant, si à 11 ans et à 12 ans la 1^{re} molaire permanente est encore la dent qui a la plus forte expérience de la carie, déjà à ces âges la proportion du CAOF retrouvée sur les incisives commence à s'accroître. Quel que soit l'âge, l'expérience de la carie sur les premières molaires se concentre principalement sur les faces occlusales suivies des faces buccales et linguales. À 7-8 ans, les faces proximales sont peu touchées par la carie mais à 11-12 ans, la prévalence de la carie sur les faces mésiales représente environ 12 pour cent de la l'attaque carieuse globale des 1^{res} molaires permanentes.

Une étude nationale américaine récente¹⁷ permet les comparaisons entre la prévalence de la carie sur les faces des dents permanentes (CAOF global) des écoliers

du Québec et des États-Unis. Selon l'âge, le différentiel entre les résultats des États-Unis en 1979-80 et ceux du Québec en 1983-84 varie entre 47 pour cent et 58 pour cent. À 11-12 ans, l'attaque de la carie aux États-Unis comme au Québec est toujours plus élevée sur les faces occlusales puis sur les faces bucco-linguales et enfin sur les faces mésio-distales. La distribution de la somme de la carie entre les divers types de faces ne varie aux États-Unis et au Québec que pour les faces occlusales et mésio-distales. Aux États-Unis, dans l'expérience globale de la carie, les faces occlusales à 12 ans comptent pour 10 pour cent de plus qu'au Québec (58 vs 47 pour cent) et inversement que les faces mésio-distales comptent pour 10 pour cent de moins (11 vs 20 pour cent). Cela démontre bien que l'attaque carieuse sur les faces proximales (faces lisses) est mieux contrôlée chez nos voisins du Sud. On se rappellera qu'aux États-Unis 52 pour cent de la population bénéficient de la fluoruration des eaux de consommation alors qu'au Québec, 8 à 9 pour cent seulement peuvent profiter de cette excellente mesure préventive de la carie dentaire. Toutefois, au Québec comme aux États-Unis 75 pour cent des faces ayant expérimenté la carie ont été traitées par obturation.

La réalisation de l'Enquête Santé Dentaire Québec a permis de situer de façon précise, l'état de la santé dentaire de nos écoliers québécois en 1983-1984. Les programmes de services curatifs et préventifs sans frais individuel implantés par l'État dans les années 1973 et 1974, puis progressivement élargis ont probablement contribué en partie à l'évolution positive observée entre 1977 et 1984 dans le contrôle de l'attaque carieuse et dans l'amélioration du niveau de traitement de la carie. Il est donc indispensable de conserver ces acquis et même d'inten-

sifier les efforts préventifs et curatifs dans certains groupes d'âges spécifiques plus vulnérables. Δ

Cette étude fut subventionnée par la division de santé communautaire de l'Association des Hôpitaux du Québec et le Ministère des Affaires Sociales du Québec.

Martin Payette, DDS
Responsable du programme santé dentaire
Département de santé communautaire
Hôpital Saint-Luc

Réjean Plante, DDS
Dentiste-conseil
Département de santé communautaire
Hôpital Saint-Luc

TABLEAU 9

Attaque carieuse selon le type de dents temporaires
Enquête santé dentaire Québec 1983-1984
Ensemble des écoliers – secteur scolaire public

Dents	Moyenne cao face			
	7 ans		8 ans	
Incisives	0.30	(2.7%)	0.10	(0.7%)
Canines	0.58	(5.3%)	0.79	(6.2%)
1 ^{res} molaires	4.60	(42.7%)	5.36	(42.5%)
2 ^{es} molaires	5.29	(49.1%)	6.34	(50.3%)
Toutes les dents	10.77	(100%)	12.59	(100%)

Entre parenthèses () = Pourcentage de la prévalence de la carie par type de dents.
Entre crochets [] = Pourcentage total de la prévalence de la carie sur les 1^{res} et les 2^{es} molaires temporaires.

TABLEAU 10

Attaque carieuse selon le type de dents permanentes
Enquête santé dentaire Québec 1983-1984
Ensemble des écoliers – secteur scolaire public

Dents	Moyenne CAO face							
	7 ans		8 ans		11 ans		12 ans	
Incisives	0.009	(2.1%)	0.02	(2.1%)	0.30	(4.8%)	0.54	(6.8%)
Canines					0.007	(0.1%)	0.01	(0.1%)
Prémolaires					0.31	(5.0%)	0.67	(8.4%)
1 ^{res} molaires	1.38	(97.8%)	2.29	(97.8%)	5.18	(84.0%)	6.05	(76.2%)
2 ^{es} molaires					0.30	(4.8%)	0.66	(8.3%)
Toutes les dents	1.41	(100%)	2.34	(100%)	6.16	(100%)	7.93	(100%)

Entre parenthèses () = Pourcentage du CAO face sur l'ensemble des dents qui s'applique aux divers types de dents.

TABLEAU 11

Attaque carieuse sur la première molaire permanente selon le type de faces
Enquête santé dentaire Québec 1983-1984
Ensemble des écoliers – secteur scolaire public

Âge	Moyenne du CAO face					
	Occlusales	Buccales	Linguales	Mésiales	Distales	Toutes les faces
7	0.81 (59.1%)	0.31 (22.6%)	0.20 (14.5%)	0.03 (2.1%)	0.01 (0.7%)	1.37 (100%)
8	1.32 (57.8%)	0.48 (21.0%)	0.36 (15.7%)	0.08 (3.5%)	0.03 (1.3%)	2.28 (100%)
11	2.60 (50.1%)	0.94 (18.1%)	0.87 (16.7%)	0.60 (11.5%)	0.17 (3.2%)	5.18 (100%)
12	2.83 (46.7%)	1.09 (18.0%)	1.05 (17.3%)	0.80 (13.2%)	0.27 (4.4%)	6.05 (100%)

Entre parenthèses () = Pourcentage du CAO face global selon le type de faces.

Références

1. Bellerose, C.: Rapport sur l'étude du CAO dents des écoliers de l'élémentaire du DSC de l'hôpital Haut-Richelieu. *Enquête* 1975-1976.
2. Beaudoin, F.: Bilan de la carie chez un échantillon d'enfants de deuxième année (1980-1981), de troisième année (1981-1982), de quatrième année (1980-1981), de cinquième année (1981-1982), du territoire du DSC de Shawinigan. Août 1982.
3. Payette, M.: Étude des indices CAO dents des enfants et des adolescents de la région centre et centre-sud de Montréal. *J Dent Que* 1981 juin/juillet:51-59.
4. Taillon, G.R.; Marineau, J.J.: Rapport sur l'enquête en santé dentaire dans les DSC de Laval et de Saint-Jérôme (1978-1979), 1982.
5. Marchand, M.; Couture, R.S.: La condition dentaire des écoliers de sixième année: Rapport de l'enquête 1981. Département de Santé Communautaire. Hôtel-Dieu de Roberval. Avril 1982.
6. Stamm, J.W.; Dixter, C.T.; Langlois, R.P.: Principal Dental Health Indices for 13-14 year old Quebec Children. *Can Dent Assoc J*; 1980; 46:125-37.
7. Infante-Rivard, C.; Payette, M.: La carie, la malocclusion et les maladies périodentaires. Étude longitudinale d'une cohorte de 2 037 écoliers montréalais. I. Méthodologie et résultats préliminaires. *J. Can Dent Assoc J* 1980; 46:719-25.
8. Payette, M., L'Heureux, J.B., Lepage, Y.: Enquête Santé Dentaire Québec 1983-1984. Rapport préliminaire. Volet provincial. Association des directeurs de Département de santé communautaire. Ministère des Affaires sociales, mars 1985.
9. Payette, M., L'Heureux, J.B., Lepage, Y.: Enquête Santé Dentaire Québec 1983-1984. Rapport complémentaire. Volet provincial. Association des Hôpitaux du Québec. Division des CH-DSC. Ministère de la Santé et des Services Sociaux, janvier 1987.
10. Payette, M., L'Heureux, J.B., Plante, R., Payette, J.C.: Vaste enquête-action sur la santé bucco-dentaire des écoliers québécois. *J Dent Qué* 1984; janvier:39-43.
11. O.M.S. Enquête sur la santé bucco-dentaire. Méthodes fondamentales, Deuxième édition, 1977.
12. O.M.S. A guide to Oral Health Epidemiological Investigation, 1979.
13. Russel, A.L.: A system of classification and scoring for prevalence surveys of periodontal diseases. *J Dent Res*. 1956; 35:350-59.
14. Lilienthal, B.; Amerena, V. and Gregory, C.: An epidemiological study of chronic periodontal disease *Arch Oral Biol*. 1965;10:553-66.
15. Grainger, R.M.: Orthodontic treatment priority index. Washington, D.C. National Health Center of Health Statistics, 1967 (2^e série de publications, no 25).
16. FDI/WHO changing patterns of oral health. Implications for oral health manpower: Part I. *International Dent J* 1985;35:235-51.
17. The prevalence of Dental Caries in United States Children 1979-1980. U.S. Department of Health and Human Services. Public Health Service. National Institute of Health. NIH Publication no: 82-2245, December 1981.

Canadian Dental Association

*We want to be **YOUR** Association.*



For more information on our programs
and services, please call:
1-800-267-6364 Eastern Canada, except area code 709
1-800-267-6354 Western Canada, including area code 709

TAXATION SEMINAR

JANUARY 20, 1989

8:30 a.m. – 4:30 p.m.

HOTEL BEAUSÉJOUR • MONCTON

Dr. Robert N. Hicks of West Vancouver, Chairman of the CDA Taxation Committee, will chair a CDA Taxation Seminar in Moncton, New Brunswick on Friday, January 20, 1989.

Presenters will include tax lawyers and accountants knowledgeable in the area of tax information as it applies to the dentist's financial activity in both practice and personal environments.

- | | |
|---|---|
| ☐ Income Tax Reform | ☐ Income Splitting |
| ☐ Sales Tax Reform | ☐ Tax Implications in Estate Planning |
| ☐ Tax Implications in Financial Planning | ☐ Update on the Use of Corporations |
| ☐ Tax Shelter Investing | (Professional Management Companies,
Personal Service Corporations, Incorporated Practices) |

During 1987, Government White Papers brought forward proposals for changes in Income Tax and Sales Tax Reform. The CDA Taxation Seminar will focus on the known and anticipated impact of tax reform on the dental practitioner.

REGISTER NOW TO RESERVE YOUR PLACE

R E G I S T R A T I O N F O R M

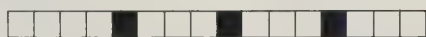
Complete and Return with your cheque made payable to:
Canadian Dental Association
1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6

Name _____
Address _____ City _____
Province _____ Postal Code _____ Telephone _____

Payment:

☐ Cheque Enclosed

☐ Visa



☐ MasterCard



Expiry Date _____

Signature _____

Fees:

CDA Member: \$120.00
Spouse or personnel accompanying a member: \$95.00
Non-member and Others: \$170.00

(Includes Luncheon and Refreshment Breaks)

Accommodation:

Please call Hotel Beauséjour directly, using the CDA name for prearranged preferential rates.
506-854-4344
\$46.00 single • \$84.00 double

Cancellation Policy – Registration:

Cancellation before Dec. 19 – full refund.
Cancellation after Dec. 19 – 75% refund.
Cancellation after Jan. 6 – no refund.

Registration by telephone will be accepted when utilizing Visa/MasterCard
Toll free numbers: 1-800-267-6364 Eastern Canada except area code 709
1-800-267-6354 Western Canada and area code 709

Cruise the Pacific, the Canal, Mexico and the Caribbean

An Exclusive Esthetic Dentistry Seminar at Sea

*Co-Sponsored by the European Academy of Esthetic Dentistry
And the Connecticut Academy of General Dentistry*

Successful Esthetics: Communicating and Performance

This winter, join a very special Esthetic Dentistry Seminar at sea departing February 27th, 1989 aboard the brand new elegant Crown Odyssey. Joining us will be lecturers Dr. Ronald Goldstein and Dr. David Garber, both of whom are best selling authors and recognized as leading authorities on the subject of esthetic dentistry.

You will board the magnificent Crown Odyssey in San Diego for a 14-day cruise to Puerto Vallarta, Zihuatanejo, Acapulco, Caldera (Costa Rica), the Panama Canal, Cartagena, Aruba, and San Juan.

AGD Credit: 32 hours FAGD/MAGD

A 20 % discount applies to this special sailing. Book before November 30, 1988, and receive an additional 5 % off the already discounted fare. Air/Sea rates as low as \$2294 per person.

Have a "Best of the Best" adventure. Best of ships, ports, food, service, entertainment, and seminars.

For a full color brochure or reservation information contact:

Sailair Travel
28 White Bridge Road, Suite 207
Nashville, TN 37205
615-356-8500
800-759-5800 toll-free U.S.A.



Dr. Ronald
Goldstein



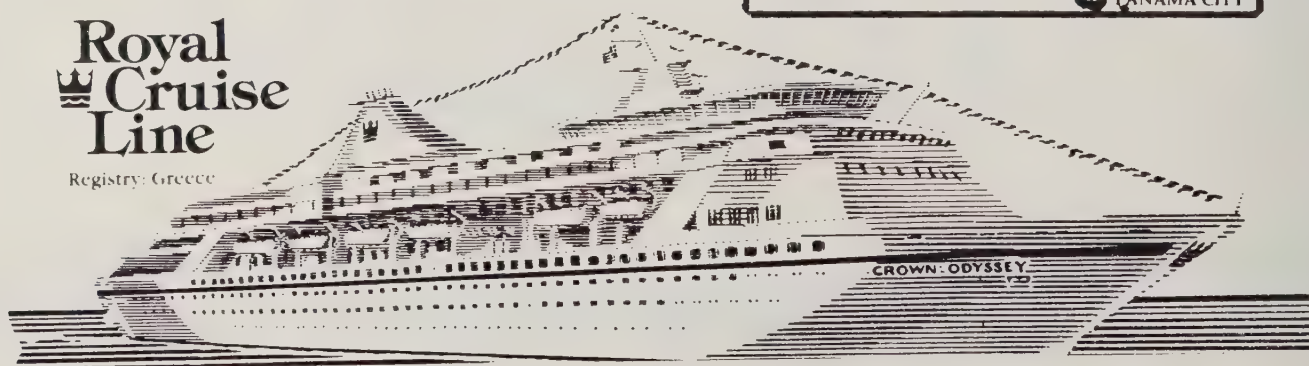
Dr. David
Garber

(Be sure to mention the Esthetic Dentistry Seminar when making your reservation.)



**Royal
Cruise
Line**

Registry: Greece



Announcements

December/Décembre 1988

December: 43rd Indian Dental Association Conference in Pune India. For more information, contact: The Indian Dental Association, 20-A D.B. Road, R.S. Puram, Coimbatore 641 002 India.

December 2: First National Bilingual Low Power Laser Therapy Conference in Ottawa, Ontario. Contact: Ms Lucie Brosseau, Physiotherapy Programme, Health Sciences Faculty, University of Ottawa, 451 Smyth Rd, Ottawa, Ont K1H 8M5.

December 2-4: 12th Annual Session and Scientific Meeting of the Association for Dental Sciences of the Republic of China in Taipei, Taiwan. For information, contact: Dr. Kun-Chee Chen, 7F, No. 120, Sec 2, Chung Hsiao E Rd, Taipei, Taiwan.

January/Janvier 1989

January thru December 1989: Maxi-Course in Oral Implantology sponsored by the American Academy of Implant Dentistry and the American Academy of Implant Dentistry Research Foundation. One weekend per month. Contact: Brookdale Hospital Medical Center, Attn: Marguerite Rocholl — Maxi-Course Registrar, Dept of Oral Surgery, Linden Blvd at Brookdale Plaza, Brooklyn, NY 11212 USA. Tel: (718) 240-6282.

January 14-28: 18th International Alpine Dental Conference in Courchevel 1850 France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogan Square, London SW1X 0JP. Tel: 01-235 0787.

January 15-21: Barbados Dental Association Mid-Winter Meeting. For more information, contact: Dr. O.F. Weel, President, Barbados Dental Association, P.O. Box 95, Bridgetown, Barbados.

January 27-29: Dentistry for the Nineties An International Dental Congress sponsored by the College of General Dental Practitioners of Sri Lanka. For details, contact: Dr. L.S.W. Dassanayake, Inter-

national Dental Congress, College of General Dental Practitioners of Sri Lanka, 439 Elvitigala Mawatha, Colombo 5, Sri Lanka.

February/Février 1989

February 2-4: Expanding Dentistry's Horizons The Miami Winter Meeting sponsored by the East Coast Dental Society at the Hyatt Regency Miami, Florida. For more information, contact: East Coast Dental Society, 420 S. Dixie Highway, Suite 2E, Coral Gables, FL 33146 U.S.A. (305) 667-3647.

February 4: Centennial Ball of the Xi Psi Phi Dental Fraternity at the Royal York Hotel in Toronto. For more information, write: Dr. Don Ducasse, 4211 Yonge St., Suite 204, Willowdale, Ont M2P 2A9.

February 17-21: Annual Convention of the Jamaica Dental Association at Mallard's Beach Hotel, Ocho Rios, Jamaica. For information, contact: Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica WI.

February 25-March 4: Virgin Island 11th Annual Scientific Meeting. Limited Attendance. Please contact: Dr. Bob Brandon, 85 Lonsdale Rd, London, Ont N6G 1T4 (519) 657-3368.

March/Mars 1989

March 6-10: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. For information, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

March 16-19: First Asian Congress on Oral and Maxillofacial Surgery organized by the Asian Association of Oral and Maxillofacial Surgeons in Manila, Philippines. Invited speakers include E. Steinhauser (FDR), J. Langdon (UK), Bruce Epker (USA). For further details, write: Congress Secretariat, First Asian Congress on Oral and Maxillofacial Surgery, c/o Philippine Heart Center, Suite 401, East Avenue, Quezon City 1100, Philippines.

March 18-25: 19th International Alpine Dental Conference in Courchevel 1850, France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogan Square, London SW1X 0JP. Tel: 01-235 0787.

March 23-24: 8th Jordanian Dental Congress in Jordan. Contact: Dr. Irfan Sultan, PO Box 1326, Amman, Jordan.

March 29-April 1: Review of the Biologic and Clinical Aspect of Endodontology in Ann Arbor, MI. Contact: Office of Continuing Education, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078 USA (313) 763-5070.

April/Avril 1989

April 10-15: 22nd National Dental Congress of the German Dental Association in conjunction with 111th Annual Meeting of the German Society of Dental, Oral and Orthodontic Medicine and the German Dental Industry Association's International Dental Show in Stuttgart, Germany. Contact: Stuttgarter Mess & Kongress GmbH, Am Kochenhof 16, D-7000 Stuttgart 1, West Germany.

April 12-15: Bundesverband der Deutschen Zahnärzte in Killesberg/Stuttgart, Germany. Contact: Cornelia Hackenbruch, Bundesverband d. Deutschen Zahnärzte, Universitätsstr. 73, 5000 Köln 41, Germany.

April 26-30: 14th Asian Pacific Dental Congress at the Korea World Trade Center in Seoul, Korea. For further information, please contact: Secretariat of the 14th APDC, c/o Korean Dental Association, PO Box 41 Youngdeungpo, Seoul 150, Korea Tel: (02) 653-3351/3.

April 27-29: Journées dentaires internationales de Nice-Côte d'Azur in Nice France. For information, write: Dr. Jean-Louis Vidal-Revel, President, Journées dentaires internationales de Nice-Côte d'Azur, 37, av. Villermont, 06000 Nice, France.

April 27-30: Ontario Dental Association 122nd Annual Spring Meeting at the Metro Toronto Convention Centre. All members and groups of the dental profession are invited to prepare a clinic for presentation at the Spring Convention.

Deadline for applications is November 30, 1988. For more information, contact: Diana Thorneycroft, ODA Headquarter, 234 St. George St, Toronto, Ont. M5R 2P1.

April 28-30: Canadian Academy of Periodontology and Ontario Society of Periodontists Seminar to be held at the Sutton Place Hotel, Toronto. For more information: Dr. Marvin Budd, 2130 Lawrence Ave E., Suite 206, Scarborough, Ont M1R 3A6 (416) 751-8811.

May/Mai 1989

May 1-3: 9th International Dental Meeting in Nice, France. For more information, contact: Mrs. Schmitt, 37, av Villermont, 06000 Nice, France. Tel: (33) 93 98 26 09.

May 21-26: 10th International Conference on Oral and Maxillofacial Surgery in Jerusalem. Contact: Dr. Eli Ronen, Chairman, Organizing Committee, 10th International Conference on Oral and Maxillofacial Surgery, PO Box 5006, Tel Aviv 61500, Israel.

May 24-27: Swiss Dental Association Convention in Switzerland. Contact: Dr. Pierre Spahn, 51, av du Casino, 1820 Montreux, Switzerland.

May 29-June 2: Periodontal and Prosthetic Treatment in Advanced Cases in Malmo, Sweden. For details, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June/Juin 1989

June 1-5: 12th Congress International Association of Dentistry for Children in Athens, Greece. For details, contact: Secretariat, 12th Congress IADC, 41, Skoufa Str, Athens 106 73, Greece.

June 3-6: Alberta Dental Association Convention in Red Deer, Alberta. For information, contact: Dr. M.H. Harach, Convention Chairman, 101-8230 - 105 St, Edmonton, Alberta T6E 5H9.

June 5-9: XXV Congreso nacional y V International de Odontologia y Estomatologia in Malaga, Spain. For information, contact: SITECC-SIASA, c/o Manuel del Palacio, 16, Edif. Costa Bella, Apto. 3, 29017 MALAGA, Spain. Tel: 29 29 20 - 29 41 43.

June 5-9: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. Contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June 19-23: 14th International Congress of Gerontology in Acapulco, Mexico. For details, contact: Congress Secretariat, Jojutla No. 91, Tlalpan CP 14090, Mexico D.F., Mexico.

June 26-30: XII Congreso de la Federación odontologica latinoamericana y XI Congreso nacional de Estomatologia in Havana, Cuba. Contact: International Conference Center, Apartado 16046, Zona 16, Havana, Cuba. Tel: 20-4653.

June 28-30: 11th International Symposium on Dental Hygiene in Ottawa. For more information, contact: Wilma E. Motley, 18952 Blackhawk St, Northridge, CA 91326, USA.

June 28-July 1: International Association of Dental Research & International Conference on Oral Biology in Dublin, Ireland. For information, contact: Ms. Eloise Bredder, Administrative Assistant, American Association of Dental Research, 1111 - 14th St NW, Suite 100, Washington, DC 20005 USA.

June 30-July 2: Dentistry 89 in Oxford, England. For details, contact: Linda Bridges, Conference Office, British Dental Association, 64 Wimpole St, London W1M 8AL. Tel: 01-935 0875.

August/Août 1989

August 27-30: Canadian Dental Association Convention in Vancouver, British Columbia. For more information, contact: Miss Linda Teteruck, Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6 Tel: (613) 523-1770.

Can't
Do it
Alone.

Join the
team.



Obituaries/ Nécrologie

Balderson, Robert G.: a graduate of the University of Alberta (BSc) and McGill University (DDS, 1956), Dr. Balderson carried on a practice in Ottawa until illness forced his retirement.

Hauck, Colin C.: Born in 1934, Dr. Hauck graduated from the University of Alberta with his DDS in 1959. He conducted a practice in Edmonton from 1959 to 1962 and then moved to Wainwright, Alberta, where he practised until his decease. A brother, Dr. Don Hauck, practised with him in Wainwright.

Leman, Alexander C.: Born in 1912, Dr. Leman graduated from the University of Toronto in 1938, and practised in Tweed, Ontario. He was a Life Member of the Canadian Dental Association.

Ryan, Joseph G.: a native of British Columbia, received his DDS degree from the University of Toronto in 1945 and an MS from the University of Michigan in 1949. He was certified as an orthodontist in 1962. He conducted a private practice in Vancouver since 1949. Dr. Ryan served as President of the Vancouver and District Dental Society in 1957-58 and as Vice-President of the Council of the College of Dental Surgeons of British Columbia from 1965 to 1967. In 1968 he was chairman of the CDA national Convention. He also served as a clinical instructor in the Department of Orthodontics, Faculty of Dentistry, University of British Columbia. He was a Life Member of the Canadian Dental Association.

Ustohal, Marek: Born in 1962, Dr. Ustohal received his dental education at the University of Toronto. He was awarded a DDS there in 1987. He conducted a practice in Mississauga, Ontario. △

Engerix®-B

Hepatitis B Vaccine (recombinant)

Description Engerix®-B [hepatitis B vaccine (recombinant)] contains purified hepatitis B surface antigen (HBsAg). It is the product of recombinant DNA technology developed by SmithKline-RIT, s.a., Belgium.

The HBsAg gene from the hepatitis B virus has been cloned by genetic engineering into *Saccharomyces cerevisiae*. The production of the vaccine involves an optimized fermentation process followed by disruption of the yeast cells and extraction of HBsAg. Subsequent purification processes include precipitation steps, ion exchange and gel permeation chromatography, and caesium chloride ultracentrifugation. Standardization of the methods of fermentation and purification procedures ensures lot-to-lot consistency.

In vitro experiments have shown that the yeast-derived HBsAg in Engerix®-B contains all the epitopes (antigenic sites) that have been found in the HBsAg in plasma-derived vaccines.

In vivo, the human antibody response to Engerix®-B is similar to the response to plasma-derived vaccines with respect to epitope specificity and avidity. There is no significant modification of the anti-yeast antibody titre after vaccination with Engerix®-B.

These studies indicate that Engerix®-B is immunologically similar to the plasma-derived vaccines and provides similar protective efficacy.

Since no substances of human origin are used in the production of Engerix®-B, the potential for transmission of diseases associated with blood and blood products is eliminated. Potency, safety and sterility are verified for each lot.

The vaccine is a slightly opaque, white, sterile suspension. A slow settling of the white aluminum hydroxide may occur during storage leaving a clear colourless supernatant liquid. Each 1 mL dose of vaccine contains 20 µg of hepatitis B surface antigen adsorbed onto 0.5 mg of Al⁺⁺⁺ as aluminum hydroxide with 0.005% thimerosal as preservative.

In comparative studies commercial plasma-derived vaccines and Engerix®-B exhibited comparable potency in mice and guinea pigs, and comparable protective efficacy in chimpanzees.

Engerix®-B is also highly immunogenic in rabbits, goats and monkeys.

Indications and clinical use Engerix®-B [hepatitis B vaccine (recombinant)] is indicated for active immunization against hepatitis B virus infection. The vaccine will not protect against infection caused by hepatitis A and non-A non-B hepatitis viruses. As hepatitis D (caused by the delta agent) does not occur in the absence of hepatitis B infection or carrier state, it can be expected that hepatitis D will also be prevented by vaccination with Engerix®-B.

The vaccine can be administered at any age from birth onwards. It may be used to start a primary course of vaccination or as a booster dose. It may also be used to complete a primary course of vaccination started with plasma-derived or yeast-derived vaccines or as a booster dose in subjects who have previously received a primary course of vaccination with plasma-derived or yeast-derived vaccines.

In areas of low prevalence of hepatitis B, vaccination is strongly recommended in subjects who are at increased risk of infection. These include the following groups:

Health care personnel: physicians and surgeons; oral surgeons and dentists; nurses, dental nurses, dental hygienists, podiatrists; IV teams and operating room personnel; paramedical personnel in close contact with patients; staff in hemodialysis, nephrology, hepatology, hematology and oncology units; laboratory personnel handling blood and other clinical specimens; blood bank and plasma fractionation workers; pathologists and morgue attendants; cleaning staff who handle waste in hospitals; emergency and first aid workers; ambulance staff; dental, medical and nursing students.

Patients: patients receiving frequent blood transfusions or clotting factor concentrates, such as those in oncology units and those with thalassemia, sickle-cell anemia, cirrhosis, hemophilia, etc. patients on hemodialysis.

Personnel and residents of institutions: persons with frequent and/or close contacts with high-risk groups; prisoners and prison staff; residents and staff of institutions for the mentally retarded (those who are in contact with aggressive biting residents being at highest risk).

Persons at increased risk due to their sexual practices: sexually promiscuous persons; persons who repeatedly contract sexually transmitted disease; homosexually active males; prostitutes.

Persons who use injectable drugs illicitly

Travellers to areas of high endemicity and their close contacts

Household contacts of any of the above groups and of patients with acute or chronic hepatitis B infection

Infants born of HBsAg-positive mothers

Others: police; fire fighters; armed forces personnel; morticians and embalmers; those who through their work or personal lifestyle may be exposed to the hepatitis B virus.

In areas of both low and high prevalence vaccination should be offered to all young children and neonates at risk as well as to adult high risk groups.

Contraindications Hypersensitivity to any component of the vaccine. As for any vaccine, Engerix®-B [hepatitis B vaccine (recombinant)] should not be administered to subjects with severe febrile infections. Vaccination of a subject with febrile symptoms, with a respiratory infection, or with a contagious or any other disease should be postponed until after recovery. However, the presence of a trivial infection does not contraindicate vaccination.

Warnings Because hepatitis B has a long incubation period it is possible that there may be latent infection at the time of vaccination. Engerix®-B [hepatitis B vaccine (recombinant)] may not prevent hepatitis B in such cases.

Patients who develop symptoms suggestive of hypersensitivity after an injection should not receive further injections of Engerix®-B (see CONTRAINDICATIONS).

Engerix®-B should not be administered in the gluteal region or intradermally since these routes of administration may not result in an optimum immune response. Intradermal administration may also result in severe local reactions. The vaccine must never be administered intravenously.

In dialysis patients and subjects who have an impairment of the immune system, adequate antibody concentrations may not be maintained after a primary vaccination course of 40 µg doses. Such patients may require repeated administrations of the vaccine.

Precautions A new sterile syringe and a new sterile needle should always be used so as to prevent the transmission from one subject to another of infectious agents, such as the hepatitis B virus, non-A, non-B hepatitis virus or the human immunodeficiency virus (HIV).

The effect of the antigen on fetal development is unknown and therefore vaccination of pregnant women cannot be recommended. However, vaccination of a pregnant woman may be considered in order to prevent hepatitis B in high-risk situations.

As with all biologicals, a solution of 1 in 1,000 adrenaline should always be readily available for immediate use in case of a rare anaphylactic reaction.

Adverse Reactions Engerix®-B [hepatitis B vaccine (recombinant)] is very well tolerated. In 47 studies, 5466 subjects received from one to four doses of Engerix®-B for a total of over 15,000 doses. No serious or severe reactions attributable to the vaccine were reported. The incidence of local and systemic reactions reported in each study was similar to those seen with plasma-derived vaccine, and tended to decrease after successive doses of vaccine.

The most commonly reported local reactions were soreness, erythema and swelling at the injection site as seen with all adsorbed vaccines. These reactions were mild and usually subsided within two days after vaccination. Systemic complaints such as fever, headache, nausea, dizziness and fatigue have occurred rarely; a causal relationship with the vaccine has not been established.

Dosage Adults, children and infants: The same 1 mL dose of 20 µg of Engerix®-B [hepatitis B vaccine (recombinant)] is recommended for subjects of all ages.

Hemodialysis and immunocompromised patients: A 2 mL dose of Engerix®-B (40 µg) is recommended.

For individuals in whom a primary vaccination schedule has been initiated with a plasma-derived vaccine, dosing may be continued with Engerix®-B.

Engerix®-B can effectively boost anti-HBs responses initially elicited by either plasma-derived or yeast-derived vaccines.

Vaccination Schedules

	3 DOSE SCHEDULE	4 DOSE SCHEDULE	SCHEDULE FOR HEMODIALYSIS PATIENTS
20 µg PER DOSE*	Timing of doses	Timing of doses	Timing of doses
1st DOSE	ZERO time	ZERO time	ZERO time
2nd DOSE	1 MONTH after 1st dose	1 MONTH after 1st dose	1 MONTH after 1st dose
3rd DOSE	6 MONTHS after 1st dose	2 MONTHS after 1st dose	2 MONTHS after 1st dose
4th DOSE	—	12 MONTHS after 1st dose	6 MONTHS after 1st dose

*N.B.: 40 µg for hemodialysis and immunocompromised patients.

Engerix®-B may be administered according to the 3 dose schedule historically used with other hepatitis B vaccines.

For more rapid protection a 4 dose schedule results in the development of protective anti-HBs titres by 3 months. The fourth dose (at 12 months) is required to maintain prolonged protective anti-HBs titres.

For hemodialysis patients, a 4 dose schedule at 0, 1, 2 and 6 months is recommended.

Booster Doses: Experience with plasma-derived vaccines has shown that anti-HBs titres gradually decline over time. It is expected that this will also be true for Engerix®-B. Engerix®-B can effectively boost anti-HBs responses initially elicited by either plasma-derived or yeast-derived vaccines.

A booster dose (20 µg) should be considered 5 years after the last dose.

For hemodialysis and immunocompromised patients, a booster (40 µg) may be required sooner. Regular serological monitoring is recommended to ensure that antibodies are and remain at protective levels.

Administration Check the expiry date of the vaccine carefully. Do not use vaccine beyond its expiry date.

Shake the vaccine well before use so as to resuspend the sediment of fine white particles of adjuvant (aluminum hydroxide) which settles during storage.

Clean the skin at the site of injection with a suitable antiseptic and dry with a piece of dry sterile cotton. Disinfect the rubber stopper with antiseptic; wipe it dry with a dry, sterile cotton swab; then using a sterile needle, withdraw 1 mL from the vial into a sterile syringe.

Engerix®-B should be injected intramuscularly. In adults the injection should be given in the deltoid region. In neonates and infants it may be preferable to inject Engerix®-B in the anterolateral thigh because of the small size of their deltoid muscle. In special circumstances the vaccine may be administered subcutaneously in patients with severe bleeding tendencies (e.g., hemophilias).

ENERGIX®-B MUST NOT BE GIVEN INTRAVENOUSLY OR INTRADERMALLY Engerix®-B may be administered simultaneously with hepatitis B immunoglobulin (HBIG); however it must be administered at a separate injection site.

Availability 1 mL single dose vial containing 20 µg of hepatitis B surface antigen per vial in a carton with Prescribing Information leaflet.

Storage and Stability: The vaccine should be shipped under refrigeration and stored at 2°C to 8°C (35.6°F to 46.4°F). DO NOT FREEZE. Vaccine which has been frozen is no longer potent and should be discarded.

When stored at 2°C to 8°C (35.6°F to 46.4°C), the shelf life of Engerix®-B is two years from the date of manufacture. The expiry date is shown on the label.



La pression monte



Vous avez besoin d'assurances pour protéger les nombreux aspects de votre vie personnelle et professionnelle. Vous serez probablement une des cibles favorites des agents ou des courtiers, mais il n'est pas toujours agréable d'être la cible de quelqu'un.

Si vous sentez que vous risquez de perdre le contrôle de vos décisions d'assurance, fermez la porte à clé et appelez le CDSPI. Nous vous donnerons des renseignements clairs et objectifs sur les options qui s'offrent à vous, dont votre propre Régime d'assurance des dentistes du Canada (RADC). Nous VOUS aiderons à conserver le contrôle de vos décisions d'assurance.

Notre service d'analyse des contrats, qui est gratuit, vous fournira une analyse claire par écrit de vos contrats actuels ou des propositions qui pourraient vous être présentées. Nous étudierons ces propositions en fonction de VOS besoins et à la lumière des garanties offertes par le RADC.

Si la pression devient trop forte, appelez le CDSPI.



Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11 Québec et Ontario, *sauf* pour la région avec l'indicatif régional 807

497.71.17 Toronto et environs

Le Régime d'assurance des dentistes du Canada appartient à l'ADC et aux associations dentaires provinciales et est administré par le CDSPI.

Le texte ci-dessus a été approuvé par nos consultants/courtiers et nos assureurs.

Offices and Practices

YUKON—Whitehorse: Dental practice for sale. Affordable. Details on request. Contact: Dr. F. Almstrom (403) 667-4486 Office or (403) 667-6564 Home.

BRITISH COLUMBIA: New mall in central Fraser Valley. Cineplex and Super Safeway presently supporting a growing dental practice. Now ready for full-time dentist. Great staff want to stay with new owner. Phone Pat (604) 534-5600.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

BRITISH COLUMBIA—Victoria: Established 10-year-old family practice for sale. Four fully-equipped operatories. High gross, high net, 500 plus new patients annually. Exceptional opportunity. Reply to: P.O. Box 7056, Depot 4, Victoria, B.C. V9B 4Z2.

ALBERTA—Rocky Mountain House: A beautiful, pleasant, non-irritating, leisurely dental practice for sale. Two operatories — full equipped — 15 years old — work 175 days per year — earn over \$50,000 net on very low overhead such as \$50,000 plus/year. Cost: \$30,000, \$15,000 down — owner will carry balance at prime + 1% for 18 months. (403) 845-3888 24 hour service.

ALBERTA—Spruce Grove: Practice For Sale. Satellite city of Edmonton. Busy,

ten-year-old, high-volume, preventive-oriented family practice in growing residential area. Eighty new patients per month, 5000 accounts. 4000 sq ft facility is three years old. Siemens OP10 with cephal attachment and most of the other equipment is three years old or less. Nine fully-equipped operatories. One associate and full-time hygienist in practice now. Owner wishing to retire but will stay as an associate for a smooth transition if new owner desires. Direct inquiries to Dr. James McNab, 115 Main St, Spruce Grove, Alberta T7X 3B5 (403) 962-3414.

ONTARIO—Amherstburg: Busy general practice for sale. Established 14 years. Excellent gross and net income. 95 percent insurance. 3 hygienists. Cost-sharing modern, pleasant facilities with two other dentists. Excellent location. On the lake 25 minutes from Windsor/Detroit. Great opportunity. Call (519) 736-4672.

ONTARIO—London: For Sale. Growing general practice with good patient flow and active, pre-booked recall system. Three modern, fully-equipped operatories with first class equipment — Siemens x-ray units, Pelton Crane Chairman chairs, Cavi-jets, Adecs, etc. Recent professional appraisal suitable for obtaining financial assistance. Good long-term lease. For further details call (519) 667-4040.

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

SOUTHWEST ONTARIO: Busy, established, family practice for sale in small town. Modern 30' x 50' building, air-conditioned, two well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operatory). Excellent income, low overhead. Please call (519) 482-5864.

QUEBEC—Montreal: Two operatory dental office available. This office is modern, fully-equipped and in excellent condition. Located in the Cote des Neiges area next to subway line. Ideal location

with high patient flow. Very negotiable financial arrangements can be made. For information, telephone (514) 737-2251.

NOVA SCOTIA: Exceptional Opportunity. Very busy, modern practice available in beautiful town on South Shore of Nova Scotia. Well-established, family-oriented, excellent income. For details contact: 6452 Vienna St, Halifax, NS B3L 1S8 (902) 454-9027 or 455-3748.

NEWFOUNDLAND—Clarenville: Established family practice in rapidly growing east coast town. 900 sq ft in medical building. Two operatories with space for 2 more. Good potential for further growth. Phone (709) 466-7001 (B) or (709) 466-7009 (H).

NEW ZEALAND: Practice for Sale. Situated mid North Island in beautiful Waikato dairy farming country. One hour drive to surf beaches and also the Lake district where some of the finest trout fishing in the world is found. An hour and a half to skiing and the same distance to Auckland, New Zealand's largest city. Busy, growing practice that has a high gross. Price \$90,000. Enquiries: P.J. Childs, 17 Arapuni St., Putaruru. Phone 8727 or 27.371 after hours.

Associateships Available

NORTHWEST TERRITORIES: Excellent opportunity for associateship in Yellowknife in a modern, state-of-the-art dental clinic. Excellent support staff and good recreational facilities. Emphasis on good quality dentistry and we require a dedicated, efficient dentist concerned with patient care and management. Excellent remuneration and arctic travel available. Please reply to CDA Box 2367.

BRITISH COLUMBIA: LOCATED ON PRISTINE KOOTENAY LAKE. THE JEWEL OF BRITISH COLUMBIA. Our part-time, rural practice has grown beyond expectation. Excellence and service are our only products. We need a secure, experienced associate with orthodontic skills to join semi-retired doctor in this beautiful clean-air environment. Dr. Harold Prussin (604) 227-9430.

BRITISH COLUMBIA—Fraser Valley: General family practice requires a capable, conscientious and ambitious associate three days a week in an extended hours practice. Phone evenings (604) 850-3270 or (604) 852-3619.

ALBERTA—Central: Associate required for very busy, well-established mall practice located in Red Deer. Full-time position with option to purchase. Position to start on or before November 1, 1988. Please contact Candace (403) 347-8008.

ONTARIO—London: Full-time Associate required for very busy, established general practice. Partnership opportunity available. Call Barbara at (519) 455-2551.

ONTARIO—Ottawa: Associate required for preventive-oriented general practice. Good patient load, quality patients, good location. Reply to Dr. P.M. Edmison, 2286 Carling Ave, #104, Ottawa, Ont K2B 7G2. (613) 820-9300.

ONTARIO—Ottawa: Associate required full-time with buy-in potential. Progressive, family-oriented practice. Excellent working conditions in modern environment. Three operatories available and pan. Please call (613) 238-5302 days or (613) 744-4022 evenings.

ONTARIO—Parkhill: ASSOCIATE REQUIRED. Preventive-oriented group practice environment requires an additional dentist. Future partnership possible. Located in southwest London, Ontario. One year old plaza. Excellent opportunity. Contact Dr. J. Rick Merritt at (519) 473-0220.

Opportunities Available

BRITISH COLUMBIA—Kamloops: Established practice offers opportunity for full-time, long-term position with buy-in potential. All phases of dentistry. Volitional family practice. Call (604) 579-5788 (evenings).

BRITISH COLUMBIA—Prince George: Large solo practice available in a group cost-sharing setting. Facilities are up-to-date and the office is computerized. The practice is both successful and enjoyable. Call Elaine David: Monday-Friday — Day-time (604) 562-5551; Evenings or weekends (604) 562-1927.

BRITISH COLUMBIA—Victoria: Hudson's Bay Co. requires dentist for

downtown store. Capital investment required. Serious applicants reply to Dr. David Maycher (204) 774-4501 or (604) 669-2743.

ALBERTA—Edmonton: I am searching for a hardworking, ambitious, quality-oriented dentist to practise in a dental clinic situated with a busy walk-in medical clinic. This dental office has all new equipment, including Pan. This doctor should have the desire to succeed independently and reap the rewards in one year with a possibility of partnership. Are you that dentist? Please contact (incl résumé): Dr. N. Manji, 9710 — 182 St, Edmonton, ALTA T5T 3T9 (409) 459-1799.

ALBERTA—Edmonton: Associate-Partner. A well-established, busy, certified non-hospital surgical facility is seeking an associate-partner. The facility provides general anesthesia/sedation services for dental and oral surgical procedures administered by two staff medical anesthesiologists. The facility is located in a large downtown medical-dental centre and has fully-equipped operatories, diagnostic facilities and excellent support staff. There is a large and continually growing patient demand base. This turnkey, revenue-generating opportunity will be of interest to oral surgeons/dentists wishing to practice full mouth reconstruction. Reasonable financing or lease-back arrangements are available. Phone (403) 481-7083 evenings/weekends.

QUÉBEC—Montréal: Excellent opportunity awaits a bilingual associate for this well-established practice moving to a new, expanded location mid-town. Friendly, relaxed atmosphere. Part-time (evenings, Saturdays) to start. Buy in possibility. Reply to: Dr. Terence Yacovitch, 137, av du Mont Royal ouest, Montréal (Québec) H2T 2S5.

ONTARIO: DENTISTE DEMANDÉ — Région de l'Outaouais pour travail à pourcentage temps plein — possibilité d'association. Clinique bien équipée et moderne. Pour information communiquer avec: Dr. Alain Thivierge, tel: (819) 595-3368 ou (613) 733-9731.

ONTARIO—North Toronto: Position available immediately for a Paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services;

well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost sharing arrangement. Please reply to CDA Box 2426.

NOVA SCOTIA: ASSOCIATE/PARTNER wanted to join a young, energetic and growing practice in downtown Halifax/Dartmouth offices. For more information contact Dr. Chris Petropolis, 176 Portland St, Dartmouth, NS B2Y 1J3. (902) 465-2140 Dartmouth, (902) 421-1047 Halifax, (902) 423-9691 Home.

Opportunities Wanted

ALBERTA—Edmonton Area: Experienced, conscientious dentist considerate of quality and the patient. I am interested in a part-time associateship or in purchasing or buying into a busy, stable practice where the senior dentist wishes to continue working on a part-time basis. Reply to CDA Box 2396.

ONTARIO: Dentist looking for associateship/locum in Mississauga, Oakville, Burlington area. Please call (416) 847-1924.

ONTARIO—Ottawa: Associate available part-time. Six years experience in general dentistry. Ottawa area. Please contact Dr. E. Vichos (613) 232-7863.

Equipment

ONTARIO—Sault Ste Marie: Dental Equipment For Sale — Excellent Condition. 1 Ritter Motor lounge chair with base Model H-45, 1 Castle Unit mounted light Model T-V5A, 1 Siemens Dental Unit — Sironia with cuspidor, 1 Siemens X-ray Unit. Heliodent wall mounted with timer, 1 Kavo low-speed handpiece, 1 Siemens high-speed handpiece. Asking only \$3500 for everything. Priced to sell quickly! Call (705) 256-5071.

Wanted: All dentists with offices and practices for sale. Advertise in the classified section of the Journal of the Canadian Dental Association for best results (see classified advertising form on this page).

THE CANADIAN DENTAL ASSOCIATION

requires:
an Associate Director,
Education and
Accreditation

DUTIES:

- Designated administrative responsibilities.
- Supervision of Accreditation Survey Teams reviewing educational programs preparing Dental auxiliaries.
- Editing of associated survey reports.

QUALIFICATIONS:

- Familiarity with the oral health care team and inter-professional relations.
- Experience in and/or knowledge of dental or dental auxiliary education and accreditation.
- Excellent oral and written communication skills.
- Administrative experience and/or organizational skills.
- Bilingualism: ability to communicate orally and in writing in English and French.
- Willingness to travel extensively and frequently within Canada.

SALARY:

Commensurate with qualifications and experience; the position will be of interest to those with income in the \$30,000+ range.

STARTING DATE:

Negotiable in relation to a target date of March 1, 1989.

PLEASE SUBMIT APPLICATIONS
(BEFORE DECEMBER 15, 1988) TO:
Brian Henderson, Director
Education and Accreditation
Canadian Dental Association
1815 Alta Vista Drive
OTTAWA, ONT. K1G 3Y6

L'ASSOCIATION DENTAIRE CANADIENNE

recherche

un directeur adjoint de l'Éducation et de l'Agrément

FONCTIONS:

- Se charger de responsabilités d'ordre administratif.
- Superviser les équipes d'agrément chargées de revoir les programmes de formation en hygiène dentaire ou soins dentaires.
- Corriger ou réviser les rapports des enquêtes d'agrément.

COMPÉTENCES:

- Connaître les membres qui composent l'équipe dentaire et les rapports entre les diverses professions dentaires.
- Avoir de l'expérience ou des connaissances touchant la formation des patriciens dentaires ou des auxiliaires dentaires et l'agrément des programmes de formation. Avoir d'excellentes aptitudes pour communiquer oralement ou par écrit.
- Avoir de l'expérience en administration ou des aptitudes pour organiser.
- Bilinguisme: être capable de communiquer oralement ou par écrit en français et en anglais.
- Être disposé à voyager beaucoup et souvent au Canada.

SALAIRE:

Suivant les compétences de l'expérience; ce poste intéressera les personnes qui désirent avoir un revenu de 30,000\$ et plus.

ENTRÉE EN FONCTION:

Négociable, la date visée étant le 1^{er} mars 1989.

VEUILLEZ FAIRE PARVENIR TOUTE DEMANDE
(AVANT LE 15 DÉCEMBRE 1988) À:
Brian Henderson, directeur
Éducation et Agrément
Association dentaire canadienne
1815, promenade Alta Vista
Ottawa, Ontario K1G 3Y6

TAPE ORDER FORM

CANADIAN DENTAL ASSOCIATION CONVENTION, EDMONTON, ALBERTA

AUGUST 22 - 24 1988

PLEASE CIRCLE TAPE NO.

- 1 (A,B,C,D) - **K.J. PAYNTER MEMORIAL SYMPOSIUM**
- CRANIOMANDIBULAR FUNCTION AND
DYSFUNCTION
- 2 (A,B,C,D) - **DR. FRANK SPEAR** - ESTHETICS
- 3 (A,B,C,D) - **JENNIFER M. de ST. GEORGES** - FRONT
OFFICE PERSONNEL
- 4 (A,B) - **DR. RON ROTH** - GRIEVE MEMORIAL
LECTURE
- 5 (A,B) - **DR. RAY PURDY** - DENTISTRY AND THE
LAW
- 6 - **KNOWLTON NASH** - MURRAY
MACDONALD LECTURE
- 7 - **"TOP GUN" RANDY CUNNINGHAM** -
C.D.A./A.D.A. INAUGURAL LUNCHEON
SPEAKER
- 8 (A,B,C,D) - **IMPLANT SYMPOSIUM** - SURGICAL AND
PROSTHETIC CONSIDERATIONS
- 9 (A,B) - **DR. B. DOLANSKY** - ENDODONTICS
- 10 (A,B,C,D) - **NAOMI RHODE** - PRACTICE
MANAGEMENT
- 11 (A,B) - **DR. ED SAUER** - CAPITATION
- 12 (A,B) - **ROBERT SYDENHAM** - LOW BACK PAIN
- 13 (A,B) - **DR. BRYCE LARKE** - AIDS, VIRAL
HEPATITIS AND DENTISTRY

TAPES MAY BE PURCHASED BY USING THE ORDER FORM
FOR QUANTITY PURCHASES

NO. OF CASSETTES X \$8.00EA. = \$ _____

"SPECIAL" (ANY 4 TAPE SESSION) = \$29.00 = \$ _____
(SESSIONS #1,2,3,8,10)
(INCLUDES CAS. ALBUM - SAVINGS \$8.00)

"SPECIAL" (ANY 8 TAPES) = \$55.00 = \$ _____
(INCL. CAS. ALBUM - SAVINGS = \$12.00)

"SPECIAL" (ALL 32 CAS.) = \$221.00 = \$ _____
(INCL. CAS. ALBUMS - SAVINGS = \$89.00)

****IF MAILED ADD POSTAGE & HDLG.** = \$ _____
(\$1.00 FOR EA. CAS.) MAX. \$10.00

TOTAL ENCLOSED.....= \$ _____

PAY BY CHQE. TO: KENNEDY RECORDING OR BY
VISA OR MASTER CARD NO. _____

NAME _____

ADDRESS _____

CITY _____

PROVINCE _____

POSTAL CODE _____

MAIL TO:

KENNEDY RECORDINGS
RR #5 EDMONTON, AB.
T5P 4B7 PH. 444-5117

JOURNAL OF THE CANADIAN DENTAL ASSOCIATION

JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

1988 SUBSCRIPTION RATES
(VOLUME 54)

CANADA \$42.00
UNITED STATES \$44.00
FOREIGN \$46.00

Please note all subscriptions must be prepaid,
preferably in Canadian Funds.

Please direct inquiries to:

Jennifer McClinton, Journal Production Assistant
Journal of the Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
CANADA K1G 3Y6

Advertisers' Index

Ash Temple Limited	840
CDSPI	829, 840, 842, 856
CUSO	842
Canadian Pharmaceutical Association	830
Core-Vent Corporation	841
Den-Mat Corporation	OBC
Hoechst Canada, Inc.	798, 810, 811, 824, 835
Kodak Canada, Inc.	816
The R. Samuel McLaughlin Centre for Gerontological Health Research	842
Myo-tronics, Inc.	823, IBC
Plax	820
Premier Dental (Canada) Inc.	815
Procter and Gamble, Inc.	IFC
Sailair Travel	852
Smith, Kline & French Canada Ltd.	804, 805, 855
Squibb Canada, Inc.	812
University of Alberta	823
Warner Lambert Canada, Inc.	836
West-Scan Bite Technology Inc.	828
Whistler Seminars Inc.	806

DOCTOR! SAVE \$\$\$\$ HERE!

A CLASSIFIED ADVERTISEMENT IN THE CDA JOURNAL
IS MONEY IN YOUR POCKET.
COMPARE THE DIFFERENCE

CDA Journal
Standard Classified Ad
50 words or less
\$30.00

"The Other" dental publication
Standard Classified Ad
32 words or less
\$74.00

CDA offers **56%** more words per classified

CDA offers **53%** more space per classified

PLUS

The CDA Journal reaches approximately 2,000 more readers per month (Canadian Circulation Audit Board Statement March 1988) than any other Canadian dental publication.

PLUS

Only the CDA Journal offers one FREE placement of your classified ad if you do not receive the response you anticipated after running two paid advertisements.

Write: Journal, Classified Advertising Dept.
Attention: Jennifer McClinton
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID

AMOUNT OF CHEQUE ENCLOSED: _____

Back Talk

Astrological Communique

by Jean Cives

Gentle readers, I now reveal all. No broadsheet in this day and age is replete without a Star column. The JCDA is again first — the only astrological analysis and horoscope of Dental Practice is herewith presented.

Aries (March 21 – April 20). You are in Dryadic juxtaposition with laziness (sign of the sheep). Caries is related to Aries with a small c this month, and lesions in distal of upper molars will predominate. Increase order for amalgam, and watch out for mercury spills. Look in the mirror both before, and at work — in one you see yourself, in the other, your job which you will learn to love, even though getting a decent margin on the lingual extension of a distal Class I of the second molar, is not much fun.

Taurus (April 21 – May 21). Cautious this month. Those 8-unit bridges, can be tricky and tiring. Your hair loss will slow down mid-month and patients will stop asking your wife how her father is when you come over the horizon. Regret being personal to you, but the stress of hair loss has been affecting your professional prowess. The stars show that Orthodontic skill in Taurus always increases with scalp exposure (in the dentist, that is). In front of you after this month, is a life of bending stainless steel wire and four thousand bands that come loose on Friday afternoon. Learn to love Revenue Canada and the odd impacted upper canine.

Gemini (May 22 – June 21). Split roots will be prominent for the Twins over the next eight weeks. Watch for Endo and posts therefore. Use thinner cement or even switch to another brand. Caution in trifurcations as Venus swings into the lower left quadrant, so releasing Mars in the upper molar quadrants. Probe those upper molars carefully this month, and attend a Continuing Ed. course on Periodontia if possible. You have crossed the Cusp of Endo now and are in the Trough of furca involvement. On the business side, investment in root crop futures (parsnips, and sweet potatoes) will be poor, but forest products seem good. Expect reception staff to threaten resignation but be nice, and they will stay.

Cancer (June 22 – July 22). You were Taurus a thousand years ago, and some attributes still persist. Learn to buy low and sell high for success; work on Satur-

day mornings to help spouse pay off his/her Porsche. Strict attention to water this month — a certain influence of Pisces is seen in the Crab Nebulae, meaning flood damage. Stop washing plaster bowl in sink and forgetting to rinse away remainder. Your relations with associates and assistants will improve, as the sinks cease being blocked.

Leo (July 23 – Aug. 22). Re-order your thoughts, Leos. Last year when I said look at building blocks, I did not mean invest in that apartment house on 7th and Main. Figuratively I meant, not financially. It's a metaphor not a memorandum. Ah, well this month, its basics again — line, line those deep cavities — and when in doubt a tad of varnish on the old dentin. Again its sensitivity month for you, can't blame the cold weather any more — its your lining technique! Repeat after me three times "Glass Ionomer Cement". Good.

Virgo (Aug. 23 – Sept. 22). Your stars are low in the West so avoid quarter shares in a cow or a horse, and watch out for thunderstorms with much flash and bang for what? Only rain. Attend to working partners' wants, stop dropping cotton all over the floor and fiddling with your glove when the amalgam carver is wanted. Small details but thunderstorm activity. And for heaven's sakes, buy some new bib holders — the Smithsonian will have the old ones to put beside George W's dentures. Up-grade and look to the East.

Libra (Sept. 23 – Oct. 23). Action month, guys. New carpet in reception area perhaps, repaint the lines in the parking lot, put the T back on the sign "Dentis" — looks silly that way. Time to wear a mask during prophies — overdue for some of you. Do you really like chewing minty sand all day? Break out, but stop pottering down to Joe's at lunchtime for spaghetti — vow to eat only large lumps of raw cauliflower for lunch — that increasing rear end is not all due to the old operating stool. It's flab — Libra!

Scorpio (Oct. 24 – Nov. 22). Work will go well and luck follows you this month. Dare to suggest PFM anterior crowns instead 13 or 14 proximal composites. Become Dr. Fissure Sealant of the City — with jokes like stick to it and so on. No matter how bad your cheery remarks are,

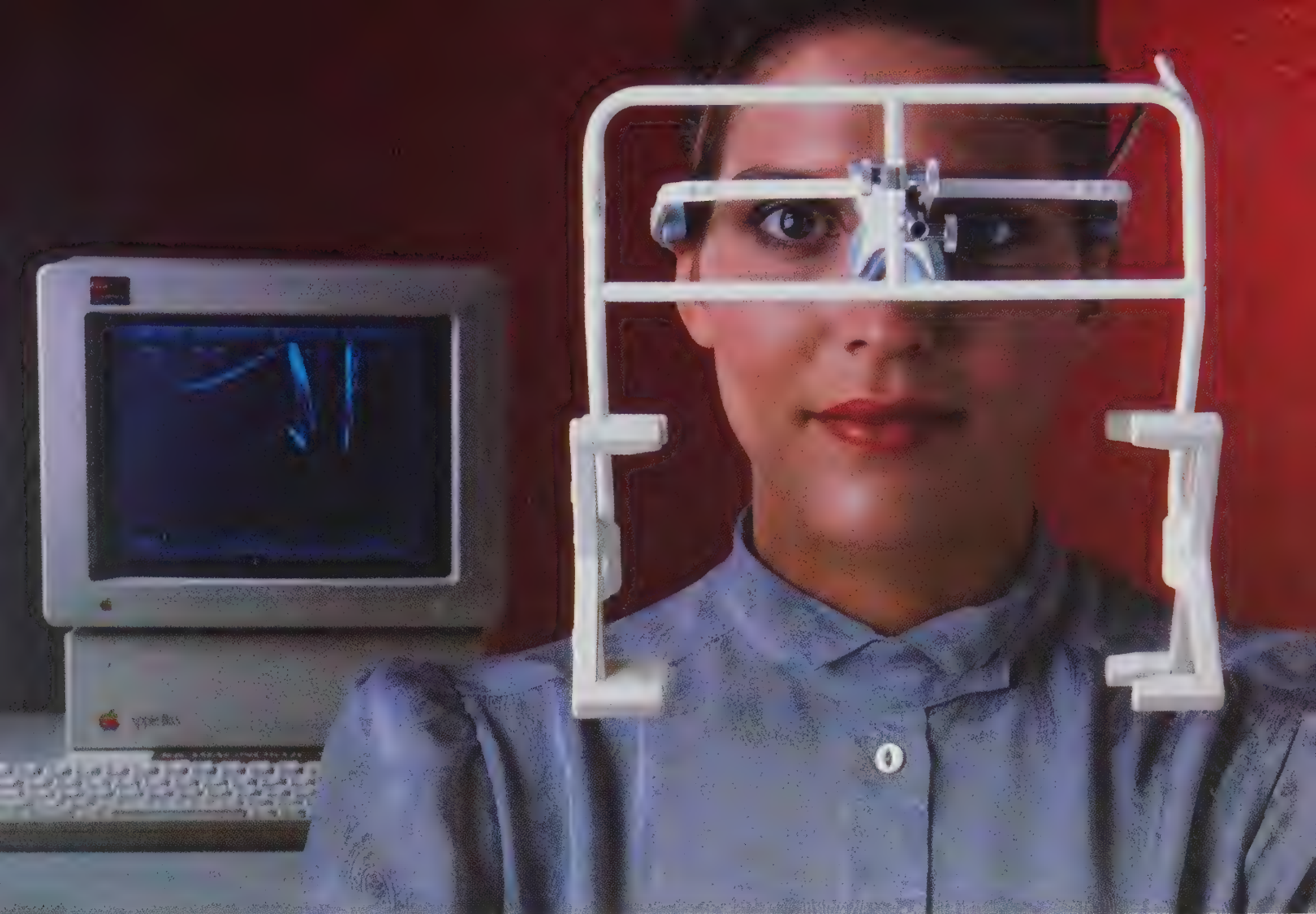
even the assistant will laugh this month. Practice listening to what the assistant has said — work will go better. Watch the Yen, could be interesting, and do make that reservation for the conference in Aix-la-Chapelle — who really cares if you do not speak French — the wine's great.

Sagittarius (Nov. 23 – Dec. 21). Short note this month — remember "Ready, Aim, Fire" not as "Ready, Fire, Aim" — and if, of surgical bent, juries are not, not impressed at all, by the simple plea it seemed like a good idea at the time. Financially speaking, think not of Flow-through shares — with your record they become flow-away shares.

Capricorn (Dec. 22 – Jan. 20). Whizzing around in circles — get used to it this month. Start explaining yet again that TMJ's are tricky things to treat, and that Endo is done after crowns even if it was not thought to be that way. Expect to put 10 teeth back on 9 partials this month, expect assistant to announce her fourteenth likely marriage, or come red-eyed at recent vacancy in loved-one-section. Yup, its just a usual month — even the mutual shares will be sluggish.

Aquarius (Jan. 21 – Feb. 18). Watch for undiagnosed interproximals during this month. As the moon enters Aries the x-rays bend even more, and those decalcified pits look like water spots. Avoid irritating front office personnel especially this month, stop tracking all their pens to the back operatory, and their "vibes", always low, at this time of year will pick up. Enjoy cosy relationship with younger dentists, and send them a decent patient or two over the next month. Do something with nature — such as water the reception area pot plants.

Pisces (Feb. 19 – Mar. 20). Watch those water valves, the gentle rain that droppeth from heaven not appreciated in the Wine Art Shop below — they fear spawning in the workplace. Try not wet patients and assistants with handpiece every time you forget the water spray is on. Fun for Pisces but alarms all the rest. Avoid fish boat limited partnership — do not overdo fish bit — equal time for chips. Worry about landlubbers. It's not easy lying here on the beach in Hawaii looking up at the stars, and trying to figure out how to give good advice to dentists and associates. Δ



© 1987 Myo-Tronics, Inc.

Head And Shoulders Above The Rest.

The latest advancement in Neuromuscular Technology. From the company that invented it.

To be sure you're getting the most advanced neuromuscular instrumentation available, go to the company that invented the science. Myo-Tronics. Maker of state-of-the art instrumentation for over 19 years. No one knows the technology better.

Our new K-6 Diagnostic System sets the standard others aspire to. No one can touch it for accuracy

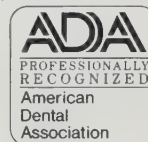
or ease of use. It provides a three-dimensional analysis of the most minute mandibular movement. Without the programming and complex commands required by other systems.

You'll get an objective occlusal analysis on paper, immediately. Providing clear documentation for insurance and legal proceedings. And it can be used to record the patient's history and exam results, too.

But equipment isn't the only reason to choose Myo-Tronics. We

offer the largest neuromuscular dentistry education program in the world. With in-depth training at all levels. No wonder more than 5000 practitioners rely on Myo-Tronics. We wrote the book on neuromuscular diagnosis.

Raise your diagnostic procedures head and shoulders above the rest. Call Myo-Tronics at 1-800-426-0316 for more information on the K-6 or upcoming seminars.



MYO-TRONICS, INC.

Myo-Tronics, Inc., 720 Olive Way, Suite 800, Seattle, WA 98101, (206) 622-2121, Telex: 32-8410.

Solves The Problems
Of Conventional Glass Ionomers

New

Light-Cured Glass Ionomer Zionomer™ Base & Liner

Since the advent of glass ionomers in the 1970's, several clinical problems have been consistently noted with their use: pulpal irritation, susceptibility to water contamination, and lengthy curing time. New Light-Cured Zionomer eliminates

these problems. It is for use as a base and liner under Class V restorations and as a base under composites, crowns, and inlays/onlays. Plus, it bonds to most dental surfaces with strengths conventional glass ionomers cannot match.

● **Buffered
For Pulpal
Compatibility**

● **Gradual
Fluoride
Release**

● **Strongest
Base &
Liner**



Physical Properties

Bond Strengths

- Enamel - 2200 psi.
- Dentin - 1600 psi.
- Precious Metal - 1170 psi.
- Non-Precious Metal - 1200 psi.
- Porcelain - 2500 psi.

Tensile Strength

- 4600 - 4900 psi (1 hour)

Cure Method

- Light-Cure
- Infinite Cure

Two Formulations

- Powder/Liquid
- Paste/Paste

DenMat®

Den-Mat Corporation
P.O. Box 1729
Santa Maria, CA 93456

See us at the Greater New York Dental
Meeting. Booth numbers 452, 453, 518,
519 and 928.

For more information or to order
New Light-Cured Zionomer Kit,
800/433-6628 or 800/233-6628

©1988 Den-Mat Corporation World Rights Reserved

December
Décembre
1988
Vol. 54
No. 12

Canadian
Dental
Association
L'Association
Dentaire
Canadienne

If Undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER À
L'EXPÉDITEUR
Port payé

JOURNAL



UNIVERSITY OF TORONTO
LIBRARY SERIALS DEPT
TORONTO, ONT

M5S 1A5

1A 8912

(BINDING SHELF)



Seasons Greetings
Joyeuses fêtes



INTRODUCING A SUPERIOR CREST. Improved tartar fight. Easier prophies.

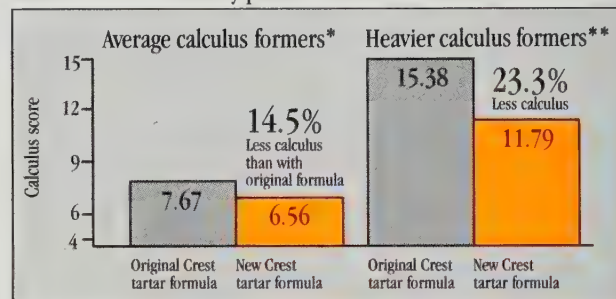
Crest, the innovator of tartar fighting toothpaste, has created a dynamic new tool against supragingival calculus. New Crest now contains 5% soluble pyrophosphate, a 51% active ingredient increase. Not only is unsightly calculus build-up inhibited, but smaller deposits are easier to remove. You spend less time scaling — and your patient is more comfortable.

Clinically proven to provide significantly greater calculus reduction.

Double-blind clinical results under ad lib conditions prove that New Crest fights calculus better than ever before. Across a broad range of calculus formers, New Crest tartar fighter provided 14.5% more calculus reduction than the original Crest tartar formula. Among heavy calculus formers, New Crest provided 23.3% greater calculus reduction.

References: 1. Lu, K.H. et al., J Indiana Dent Assoc, 1988, March-April. 2. Lu, K.H. et al., J Dent Child, 1985, Nov.-Dec., pp. 449-51.

Clinically proven calculus reduction



*Whole mouth V-M Scores ≥ 7 .

**Whole mouth V-M Scores ≥ 12 .

Mean scores significantly different from one another at alpha = 0.05.

Chart adapted from Lu et al.¹

The anticaries protection for which Crest has always been famous.

Crest's great new tartar fighting formula contains the same proven anticaries system as regular Crest. In fact, Crest is the only tartar fighting toothpaste with clinically proven anticaries protection. This was confirmed in a massive clinical study among nearly 1500 school children.²

Recommend Crest's new Tartar Fighter



CREST: Tested. Proven. Trusted.



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

JOURNAL

Canadian Dental Association
l'Association Dentaire Canadienne

December 1988

Vol. 54 No. 12

Features

*Sharing our
healing skills*
Part I: Canadians
pioneering Dentistry
in China

892

P. Ralph Crawford, DMD

Part II: Canadians in
Third World countries:
A Caribbean experience

896

Robert Clark, BSc, DDS
(as recounted to the Journal editor)

Part III: A Canadian
experience in Ethiopia

898

Henry A. Pankratz, BA, DMD, CD

Some characteristics of
glass ionomer cement
lining materials

903

Dennis C. Smith, BSc, MSc, PhD, DSc,
FRSC(Eng), et al.

Abstracts of
presentations at the
K.J. Paynter Memorial
Symposium

910

Sponsored by the Royal College
of Dentists of Canada, in
Edmonton, Alta.
13 presenters



Sharing our healing skills

Departments

869

Editorial

'The Global Village'

870

President's Column

'Gathering of the Clan'

871

News Update

876

CDA RSP

880

Resource Centre/Library

881

Briefly

882

Letters

885

Books Reviews

888

Continuing Education

919

Annual Index

928

Announcements

929

Obituaries

932

Marketplace

934

Advertiser's Index

PUBLICATIONS COMMITTEE

Chairman

Dr. John Hardie

Members

Dr. P.C. Desautels
Dr. H. Jack Stockton
A. Jardine Neilson

JOURNAL STAFF

Executive Director

A. Jardine Neilson

Editor

Dr. P. Ralph Crawford

Associate Editor

Clarence Metcalfe

Scientific Editor (English)

Dr. Robert Turnbull

Scientific Editor (French)

Dr. Pierre C. Desautels

Advertising Representative

Ms. Marg Churchill
Suite 105, 4953 Dundas St. W.
Toronto, Ont. M9A 1B6

Telephone (416) 239-1233 FAX (416) 239-8220

Classified Advertising and Circulation Coordinator
Jennifer McClinton

SPECIALTY CONTRIBUTORS

Prosthodontics

Dr. Aaron Fenton

Oral Pathology

Dr. James Main

Orthodontics

Dr. Alan Lowe

Public Health

Dr. Donald Lewis

Endodontics

Dr. Barry Korzen

Paedodontics

Dr. Howard Stein

Oral Surgery

Dr. Huan Pham

Forensic Dentistry

Dr. Robert Dorion

Periodontics

Dr. Harvey Freedman

Nutrition

Nina Burgess

Canadian Dental Hygienists Association
Carol Worobey

Canadian Dental Assistants Association
Elaine Wesley

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds in Canada — \$42; United States — \$44; all other — \$46. Subscriptions are for 12 editions, not necessarily conforming with the calendar years.

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the Journal.

ISSN0709 8936

Canadian Dental Association

EXECUTIVE COUNCIL

President

Dr. J.W. Niedermayer
Regina, Saskatchewan

Past-President

Dr. R.J. Markey
Vancouver, B.C.

President-Elect

Dr. K.L. Roach
Pembroke, Ontario

Dr. D.E. MacFarlane
Vancouver, B.C.

Dr. Ray Wenn
Charlottetown, P.E.I.

Dr. L.S. Allen
Winnipeg, Man.

Dr. G. Dubé
Lachute, Quebec

Dr. B. Sigfstead
Edmonton, Alta.

Dr. Bernard Dolansky
Ottawa, Ontario

CHAIRMAN, BOARD OF GOVERNORS

Dr. N.A. Mancini
Hamilton, Ontario

COUNCIL CHAIRMEN

Constitution and By-Laws

Dr. G.H. Peacock
Saskatoon, Saskatchewan

Dental Materials & Devices

Dr. R.Y. Barolet
Montréal, Québec

Education and Accreditation

Dr. A. Schwartz
Winnipeg, Manitoba

Ethics

Dr. R. Thordarson
Vancouver, B.C.

Hospital and Institutional Services

Dr. E.L. MacInnis
Halifax, N.S.

Information Services

Dr. P. O'Brien
St. John's, Nfld.

Insurance and Investment

Dr. J. Durran
Hamilton, Ontario

Nominations

Dr. J.R. Robertson
Summerside, P.E.I.

Student Affairs

Miss M. Shildkraut
Montréal, Qué.

STAFF

1815 promenade Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Chief Executive Officer

A. Jardine Neilson

Manager, Executive Services

Sandra Déziel

Council Secretary

Suzanne Burton

EDUCATION AND ACCREDITATION

Director of Education and Accreditation

Brian Henderson

Education, Accreditation, Professional Councils

Coordinator of Accreditation

Lorraine Emmerson

Surveys, graduate, undergraduate,
auxiliary programs, hospital services

Associate Director, Professional Councils

Janice Forsythe

Third Party Dental Plans, Health Care,
Dental Materials, Consumer Product Recognition

ADMINISTRATION

Director of Administration

Joel R. Neal

Administration, finances, information systems,
membership

Business Manager

Shelagh Dunlop

Accountant

Joan Wilkes

Membership Secretary

Lydia Allison

COMMUNICATIONS

Director of Communications

Linda Teteruck

Dental Aptitude Testing Program, Journal,
Dental Awareness Program, Student Affairs,
Resource Centre, MEDLINE, Conferences,
Conventions, media relations,
public information.

Information officer

Kimberley Allen-McGill

DAT Coordinator

Win Mobley

Librarian/MEDLINE

Martha Vaughan

Editor

Dr. P. Ralph Crawford

The Global Village Concern and Compassion

An important aspect of professionalism acquired by dentists is a sense of concern for the optimum in oral health for all.

Pride in the profession should also lead to another kind of concern — concern for the health of the profession itself, throughout this country, and world-wide.

No longer can we sit in our comfortable cocoons enjoying the best things life has to offer and say, “why should I care?” about a threat to the profession in a country half way around the world.

Today, no place on earth is **that** far away. Truly concerned people are very much aware of the reality of “The Global Village” concept.

It is well within our power professionally to offer much-needed services or at least, encouragement, to colleagues facing major political problems or to ease suffering and privation in Third World countries.

If we have been inclined to be so selfish as to ignore these matters in the past, then should we expect support if our own practice, profession or personal oral health were in jeopardy?

We are more inclined to entertain thoughts of caring and compassion at this particular season of the year. But why confine it to this season?

Let us suppose powerful lobbies or other pressures persuaded our legislators to propose potentially devastating measures affecting Canadian dentistry as was tabled in New Zealand earlier this year. We all know how difficult it is for a single interest group to halt proposed legislation, once it gains momentum. In such a crisis, we would welcome support and encouragement from colleagues and their professional bodies around the world.

What did happen in New Zealand is probably the finest example of achievement through international unity ever to occur in the annals of dentistry.

That country's government had tabled legislation that would have essentially deregulated the dental profession and allowed almost anyone who declared themselves to be a dentist, to practice.

This Journal reacted with an editorial — *Confrères in Peril* — (JCDA, Vol. 54, No. 5, p. 309) last May. Letters and literature were sent from Ottawa. There was also aid from the FDI, the American, Australian, British and Danish Dental Associations, and support from the World Health Organization's Oral Health Unit. The literature, advice and support enabled the New Zealand Dental Association to produce “a much richer document” to dissuade its government, than would have been possible through its own resources.

It was a resounding victory. The legislation was withdrawn and redrafted in terms that were almost “a complete reversal” of the worrisome implications contained in the original document.

“International support has been magnificent”, said Dr. Lawrie

Crosson, Executive Director of the NZDA. “It was really a family of dentistry affair” Dr. P.J. Collins, NZDA President, commented in a letter of gratitude to Dr. Ron Markey, then President of the CDA.

We expect Canadian dentists will feel some pride in this achievement. We also believe it will point up the need for every Canadian dentist to be vigilant and advise provincial dental bodies or a CDA authority if something amiss appears on the horizon.

Canadians are also known internationally as some of the most compassionate people on the face of the earth. In times of international disaster — floods, famine, devastating hurricanes, refugees in search of a haven — Canadians are characteristically swift to respond.

In recent years professionals have been combining this compassion with their professional skills. Many dentists are volunteering to ease pain and suffering in disadvantaged regions of the world.

The CDA has supported programs to supply much-needed dental services in the Caribbean, manned by volunteer Canadian dental personnel. Over the years, Canadians have worked hard to establish facilities and provide the benefits of modern dentistry in China. A continuous flow of volunteers from Canadian dental offices do their stints to augment oral health services in the State of Israel. Still other dental volunteers work under difficult conditions to ease pain and major dental problems among the peoples of Africa, Asia and the Philippines.

These programs will continue to exist, thrive and expand only with the encouragement, support and personal involvement, if possible, of more members of the Canadian dental profession.

Is it justified that only we, in the developed countries of the Western World, deserve all the benefits modern dentistry can provide?

We think not.

Dr. James Saddoris, Immediate Past President of the American Dental Association, told his Canadian audience at the CDA Convention in Edmonton: “We must consider the suffering and need in Third World countries. . . . We have a responsibility to bring our high quality of professionalism to all the world.”

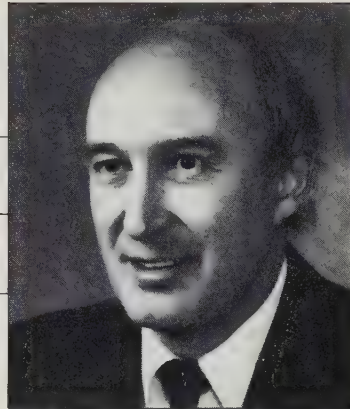
A similar message was expressed recently by a Canadian dentist, Dr. James W. Shosenberg (Editor of *Ontario Dentist*) in a guest editorial in *ADA News*: “Whatever problems we have now we will solve as we always have before, through the collective wisdom of dental scientists, practitioners and administrators, who share a vision of a world free of oral disease.”

— Season's Greetings!

*J. Clarence Metcalfe, B.J.,
Associate Editor, JCDA*

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted.

President's Column



The gathering of the clan

Last August, in Edmonton's beautiful Convention Centre overlooking the scenic North Saskatchewan River, two events took place which constituted major successes for Canadian dentistry.

One was the 1988 CDA Convention where there was an extraordinary gathering of the dental family: there was learning, and there was the joy of just being together. The other was the Annual Meeting of your National Association where very important and meaningful areas of dentistry received major review; resulting in the proclamation of significant new policies.

The Task Force on Future Planning of the Council on Education and Accreditation presented its final report containing twenty-two recommendations. One of the most important policy changes receiving approval was the formation of two separate councils; a Council on Education and a Council on Accreditation.

The process of Accreditation and Licensure must demonstrate they are related to public interest, as distinct from professional self-interest. It is quite natural that members of the Canadian Dental Association are concerned with the well-being of the profession, but the concerns related to public interest initiatives must have priority; they must be visibly maintained and visibly protected. The accreditation process is one of those quality assurance mechanisms which assures that the education of dentists and auxiliaries is the best possible. It has often been referred to as 'The Sacred Trust'.

Another assurance process related to public interest is the Certification of dental auxiliaries. The Board of Governors has invited representatives of the Canadian Dental Hygienists Association, the Canadian Dental Assistants Association and the National Dental Examining Board to meet with CDA and discuss the possibilities of establishing a Council on Dental Hygiene/Dental Assisting.

The Board of Governors also gave approval to three other policy statements, each intimately related to the oral health and well-being of all Canadians.

One deals with the Supervision Requirement for Dental Hygienists. The second, A Position Paper on Denture Mechanics, outlines the principles of patient care respecting the relationship between dentist and denture mechanic. The third is "The Principles for the Use of General Anaesthesia and Neurolept-Analgesia/Heavy Sedation in the Dental Office". Each of these will be published in future editions of the Journal.

The Convention itself, that meeting of the dental family, was proclaimed an outstanding success. The number of registrants well exceeded expectations, and from opening night festivities to the farewell brunch enjoyment was everywhere. The scientific sessions, social activities, special luncheon speakers and of course, the children's program, were all superb.

Special thanks must be extended to the Alberta Dental Association for their hospitality and for their Convention Committee's outstanding organization. To our own Canadian Dental Association Convention staff, who worked long and hard beyond the call of duty, we sincerely appreciate your loyalty. And to all those who attended making the gathering such a success, "Thank you one and all".

The gathering of the clan will take place again, next year in Vancouver, the latter part of August. Let's plan now to be part of that clan. See you there!

*Jack W. Niedermayer, BA, DDS.
President of the Canadian Dental Association.*

Anaesthesia principles are approved by CDA Board of Governors

At the 1988 annual meeting of the Board of Governors of the Canadian Dental Association, the following Principles Governing General Anaesthesia and Neurolept-Analgesia/Heavy Sedation in the Dental Office, were approved. The approved position defines the terms General Anaesthesia and Neurolept-Analgesia/Heavy Sedation and outlines the principles that must be followed in the administering of these techniques. The jurisdiction of provincial guidelines is highlighted, and the required team context delineated.

Definition of Terms:

- (a) General Anaesthesia: a wide range of techniques and modalities that produce the full loss of consciousness;
- (b) Neurolept-analgesia/Heavy Sedation: intravenous administration of drugs with the intent to impair consciousness beyond a light sedation level.

Principles:

1. The above techniques in a dental office must be administered in accordance with provincial guidelines. Where these do not exist, provincial dental licensing authorities are encouraged to undertake their development as soon as possible.
2. A dentist who chooses to administer general anaesthesia or neurolept-analgesia/heavy sedation shall be a qualified oral and maxillofacial surgeon or have taken a provincially recognized, university-level degree or diploma program in anaesthesia, which includes both didactic and clinical training.
3. The above techniques must be administered in a team context (see Principle 4). The presiding dentist must accept responsibility for the adequacy of equipment and facilities, including: emergency management equipment, monitoring protocol, and the qualifications of the members of the team.
4. The team will conform with provincial requirements and will consist of at least four members, as follows:
 - (a) a qualified dentist;
 - (b) a qualified anaesthetist or, if the dentist satisfies the requirements outlined in principle 2 above, a qualified registered nurse whose primary function is patient monitoring;
 - (c) a dental assistant, whose primary function is to keep the oral operative field free of blood, mucous and debris which could interfere with the patient's airway and quality of respiration; and
 - (d) a separate office assistant, whose primary function is to ensure that the team can function without disturbance. △

Sincere Sympathy

The Canadian Dental Association extends its most sincere sympathy to President Jack Niedermayer and his wife Nicky on the sudden passing of their daughter, Jackie, November 10, 1988, after a brief illness. Jackie leaves to mourn three sisters: Jill, Judy and Jan. Funeral services were held on November 15th at Christ the King Church, Regina. Representing the CDA were: Dr. Ron Markey, Past President; Dr. Kevin Roach, President-Elect, and Mr. Jardine Neilson, Executive Director.



Pharmaceutical research and development to get massive boost

Canada's research-based pharmaceutical industry, as represented by the Pharmaceutical Manufacturers' Association of Canada is now working with considerable enthusiasm to substantially increase its investment in research and development.

As a direct result of the passage by the Federal Government of Bill C-22 — "An Act to amend the Patent Act and Certain Matters in relation thereto" — the industry's publication, *Insight*, states that several of the PMAC members "have begun to implement the plans they announced during the debate and are . . . exploring opportunities to maximize the benefits of their investment throughout Canada's scientific community."

Insight states further that at present PMAC member companies spend about \$120 million annually on Canadian research. The figure is approximately 4.9 per cent of sales. Basic laboratory research accounts for 65 per cent of the \$120 million. Clinical research accounts for 27 per cent. The balance represents research grants and awards.

"Fulfilling the promise of C-22 means a doubling, by our industry, of its R & D (research and development) investment. We will increase our investment to 8 per cent by 1991, and to 10 per cent by 1996. That translates into a \$1.4 billion expansion, for a cumulative total investment of \$3 billion over the next decade. Of that amount, \$420 million will be spent in Canadian universities and affiliated health science centres.

"Based on the percentage of sales, this investment will move Canada from last place to the middle position, in relative terms, on the list of the world's leading seven industrialized nations." This means, *Insight* states, Canada would be ahead of the United States and Japan.

About 32 of the 68 PMAC member firms have already published R & D expansion plans totalling \$1.07 billion, over the next 10 years. That figure includes commitments to universities in British Columbia, Alberta and the Atlantic region.

Insight lists a few of the expansion plans:

Astra Pharma — plans R & D expansion of \$33 million over five years. The firm will establish a respiratory research unit and the R & D program will focus on ther-

apies for cardiology, the central nervous system and gastro-enterology.

Bristol Laboratories — with a research facility in Candiac, Québec, will invest \$40 million over five years, primarily in clinical and basic research, with a focus on oncology.

Ici Pharma — now actively engaged in both basic and clinical research at diverse Canadian centres, plans a \$5 million expansion over three years. In February the company announced a two-year contract with McMaster University to research a blocking agent for the inflammation-related enzyme, human neutrophil elastase.

Merck Frosst — plans a five-year \$120 million expansion, including extended clinical investigation at Canadian centres. The company's basic research facility in Kirkland, Québec, will be expanded to the tune of \$20 million, involving 50 additional researchers.

Nordic's expansion of \$35 million over 10 years includes pre-clinical and clinical research work with several Canadian universities.

Pacific Pharmaceuticals, an affiliate of the Terry Fox Foundation, at the University of British Columbia, plans a \$40 mil-

lion expansion with research focussing on biotechnology, specifically interferon, for the treatment of cancer.

Pfizer Canada's expansion will involve Canadian researchers in international, multi-centre clinical research.

Servier plans to do fundamental and clinical research in numerous centres across Canada. Cardiovascular diseases, particularly nephrology, and metabolic disorders, will be the focus of their work.

Squibb has announced that it will invest \$50,437,000 in its research and development activities over the next five years.

Part of the funds will be allocated to a new program designed to encourage biomedical research in Canadian universities. In an announcement speech late in September, Squibb's Chairman, Mr. Jack Kincaid, recalled that his firm had planned to devote \$24 million to that sector in 1986 — now the figure is "more than double."

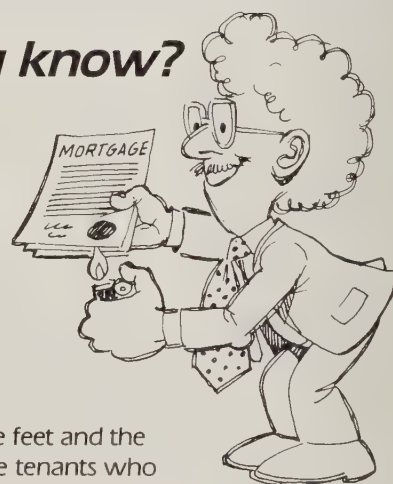
Upjohn plans to double its R & D investment by 1991, for a total of \$30 million over five years. This will be done in conjunction with Canadian research centres. The company's plans include an extension of its affiliation with London, Ontario's Victoria Hospital in phase one and two clinical research. Δ

Did you know?

You own a \$300.00 share of a building in Ottawa?? That's right!! The CDA has paid off its mortgage on the headquarters building at 1815 Alta Vista Drive. Originally built in 1976 for a cost of \$1,800,000, the building is now worth about \$3,000,000. As one of the 10,000 members of CDA **you** have a \$300.00 share. (Don't ask us to mail it to you!)

CDA occupies 1/2 of the 22,000 square feet and the other 1/2 is totally occupied with revenue tenants who pay an annual amount of \$188,000. It costs \$258,000 per year to maintain the building so CDA's own net rent is about \$6.50 per square foot. BUT, and it's a BIG **but**, CDA needs more room — they are just too busy for too many dentists.

A study is presently underway on how the building can be expanded to accommodate all those planned programs and activities of the future.



CFDE/ACFD Partnership Continues

This past summer, the ACFD House of Delegates received notice that the CFDE Board of Trustees had approved a \$120,000, three-year continuation of the highly successful CFDE/ACFD Summer Teaching and Management Institutes. In each of the past four summers, faculty from all ten dental schools in Canada, as well as from a number of dental auxiliary programs, have participated in an intensive 10-day program of teacher preparation activities geared specifically to the dental education setting. ***Such training is the only program of its kind in North America and has been very well received.*** Over the past two summers, a parallel Management Institute has been held for departmental chairman, division heads, and program directors. It too has been very successful as there are no training opportunities for such personnel within their own institutions.

The 1989 Institutes will depart for a year from the normal program as described above, and will focus its energy on two new targets, Deans and Faculty Development Coordinators. Because of an unusual concentration of new dean appointments, ACFD proposed that the 1989 Management Institute focus on the responsibilities of deans at a time when many issues (resource utilization questions, epidemiologic trends, curriculum revisions, research pressures, teaching quality, faculty practice considerations, funding cuts, and ACFD strategic planning) all seem to be at a critical level. Both the ACFD and the CFDE see the Deans' Management Institute as an excellent opportunity to collectively address these issues in more than the typical "two days cut short" fashion.

The second focus of the 1989 Institutes is to design better faculty development programs in the ten faculties. The ACFD has long been concerned about how it can stimulate faculties to put resources into the initial preparation of new faculty and the continuing education of senior faculty with regard to BOTH their teaching and research skills. Few, if any, of the ten faculties have organized programs in these areas and individual faculty members are usually left to their own devices, or random short courses, when developing teaching and research skills. With increasing pressure for demonstrated quality in both of these academic skills, ACFD believes it would be appropriate to gather the most committed individuals in

teaching and research development from each faculty and stimulate them toward designing one or more models for faculty development in their institutions. The parallel format of the two institutes will allow the deans to look in on the models as they are being planned, and to assist in the selection of those models which have the best chance of being implemented.

Since their inception four years ago, the CFDE has contributed most of the funds for the CFDE/ACFD Institutes. Additional funding has been provided by the ten dental faculties, from those dental auxiliary programs which have sponsored participating faculty, from the ACFD, and from the participants themselves. Dr. David Chambers is the Director of the Management Institutes, Dr. James Spooner is the Director of the Teaching Institutes, and Dr. John Eisner, the cur-



John Eisner, DDS, PhD

rent ACFD Treasurer, coordinates both the Teaching and Management Institutes on behalf of ACFD. Δ

Contributed by:
John Eisner, DDS, PhD, Dalhousie University

U.S. dental schools making hepatitis shots condition of enrolment

Most dental schools in the United States now require that their students receive hepatitis B vaccine as a condition of enrolment or before they begin work in a patient clinic.

Indiana University dental school requires the students should have — or at least begin — the three-inoculation regimen before they begin their first year. Students at IU may choose between Hep-tavax, the plasma-derived vaccine, and Recombivax, the synthetic vaccine. Most are opting for the Recombivax and, according to its manufacturer, Merck, Sharp & Dohme, requests from dental schools for the hepatitis B vaccine are sharply increasing.

At the University of Pennsylvania dental school, students can receive the vaccine free when they come to school as part of the infection control program there. According to the director of admissions, "They (the students) don't need the vaccine for admission, but they can't do anything in the patient clinic without it."

The University of Florida dental school also requires that its students receive the vaccine before they begin work in the patient clinic (by January of their sophomore year).

The University of Washington was scheduled to begin paying for students' vaccinations this year. The rationale is that if employers would be required by the Occupational Safety and Health Administration (OSHA) to provide the vaccine for their employees, "it is reasonable and responsible for a dental school to provide it for its students."

OSHA currently recommends that dental employers provide the vaccine for their employees, and at some point this may become a mandate. If so, dental schools, as employers, may be required to supply the vaccine at no charge to faculty and staff members.

In Canadian schools

According to Brian Henderson, CDA's Director of Education and Accreditation, educational programs in dentistry in Canada have either introduced such requirements or are in the process of doing so.

Canadian educational programs preparing dental hygienists (or dental assistants with intraoral duties) are also introducing a requirement for Heptavax vaccination.

Currently the vaccine is provided free of charge in a number of Canadian dental schools and at cost in other institutions. Δ

Multicultural advisory committee established by Ontario health ministry

The Ontario Ministry of Health is preparing to set up an advisory committee to improve access to health care for ethnic groups within that Province, Health Minister Elinor Caplan and Gerry Phillips, Minister of Citizenship and Minister responsible for race relations advised recently.

"This new body will provide advice on ways in which the ministry can help

meet the health needs and concerns of the province's many ethnocultural groups," Mrs. Caplan told the annual meeting of the Multicultural Health Coalition.

"Members of these groups, many of them recent refugees, often encounter problems which impede their access to health care services."

The committee has been asked to:

- advise the Minister of Health on means

of facilitating access to health care by all ethnocultural communities across Ontario;

- establish a communications network with ethnocultural groups across the province to receive and share information on how to achieve more culturally sensitive health service delivery;

- work in co-operation with the Ontario Advisory Council on Multiculturalism and Citizenship on issues of mutual concern as they relate to health care in Ontario; and

- recommend specific actions or initiatives to the ministry which could be incorporated into existing and new health programs and services to make them more responsive to the needs of ethnocultural groups.

The formation of this committee complements initiatives already undertaken by the ministry.

The ministry will encourage local district health councils (DHCs) to emphasize multicultural health care, and seek representation from ethnocultural groups in their districts. For any new program proposals, DHCs are being encouraged to take into consideration multicultural needs and review the types of services available to groups in their area, said Mrs. Caplan.

Twelve of the province's 13 community health centres have recruited staff fluent in a third language, other than English or French, to help respond to the health care needs of community residents.

Ministry grants have been awarded to three DHCs for special health programs aimed at Southeast Asian clients.

The ministry is also initiating the preparation of an educational program to assist health care agencies in making their staff members more aware of and sensitive to the needs of ethnic groups. △

Whole families enjoyed Convention Fun Run



They're off!

More than one hundred people assembled on the Sunday immediately prior to the beginning of the CDA Convention in Edmonton to enjoy the annual Fun Run. Participants had the choice of completing one (3.1 km) or two (6.2 km) laps around the scenic University of Alberta campus. More than 30 volunteers did everything from directing runners on the course to replenishing the juice and doughnut supplies during and after — at the post-race reception.

Twenty-six people completed the one lap event, and forty-five covered the 6.2 km. distance. A marvelous range of competitive levels was demonstrated, from sub-five minute/mile paces by the lead runners in the longer race, to whole families participating for fun in their first "stab" at an event like this. Matthew Valcheff, 8, of Brantford, Ont., was the first male across the line in the 3.1 km. race in a time of 13:42; the first female to finish 3.1 km. was Donna Barnhart, 21, of Edmonton (15:26). Mark Thomas and Celene Horne, both of Edmonton, received trophies for being the first boy and girl, respectively, to finish one lap. Dr. Gerard Charanduk, 27, of Calgary, Alberta, led all in the 6.2 km. race with a hot 19:24 clocking. Dr. Patty Irving of Edmonton led the females over the same distance, finishing eleventh overall with a 24:34 timing.

Some prominent Convention and CDA officials finished close together. Dr. Herb Link, Convention Chairman, was 17th at 27:31; Dr. Roger Ellis, now of Mississauga, Ont, was 20th at 28:04; CDA's Sandra Deziel, Manager, Executive Services, CDA Headquarters, was 21st, at 28:08 and CDA past president Dr. Bob Hicks was 23rd, at 28:51. △

Did you know?

Wanna buy a bank? According to the July 1988 "Banker" listing the top thirty-four banks in the world (according to assets), Japan led with over half, eighteen of the thirty-four. France was second with five; West Germany listed four and the United Kingdom, Switzerland and the U.S.A. have two each. Hong Kong listed only one. (No, Canada didn't make it!)

Veterinary Dentistry

Dentistry goes to the dogs!

Reprinted with special permission from the author and *The Canadian Veterinary Journal*. The article appeared in that Journal in September, 1988, Vol. 29, No. 9 ppgs 685-687.

James Anthony
Vancouver veterinarian



The first question you may ask is "why veterinary dentistry?" In the past most veterinarians, including myself, thought that veterinary dentistry was not important. I would like to change your opinion.

The first and foremost reason for veterinary dentistry is patient need. Dentistry-related problems are by far the most common medical/surgical problem in daily small animal practice. Dr. Roy Page (foremost periodontologist world wide) states that over 90 per cent of small animals have periodontal disease. A survey by the American Veterinary Dental Society showed that 65 per cent of cats had one or more cervical neck lesions (caries-like lesions). Dental disease can and will have systemic effects via hematogenous spread of bacteria resulting in endocarditis, myocarditis, nephritis, arthritis, hepatitis, and general malaise.

The second reason is that you are offering your clients a very important service strengthening the important human-animal bond. I find that clients are much more aware of a routine dental scaling than a fecal examination. Our colleagues in the human dental field have paved the way for client understanding of dentistry. In the past we only offered extractions and gross scaling and found out that some clients were more knowledgeable about dentistry than we were. Today we, as veterinarians, can offer our clients a wide variety of dental services.

The third reason is that **veterinary dentistry is a low investment with a high return. The amount of space**



A gold crown protecting an endodontically treated fractured upper right canine tooth.



Orthodontic correction of a rostrally displaced lower right second incisor.

needed is minimal. The cost of set up is much lower than the cost of an ultrasound machine with a much larger return. That is not to say that an ultrasound machine is not important or needed; however, our dental unit has a much higher return. The set-up ranges from \$5,000 to \$15,000. Just remember, equipment should be carefully thought

out and not acquired by chance.

The fourth reason is that dentistry increases your gross with your existing patient load. In a survey that I took at our clinic of our clients' animals, I found that 40 per cent of the animals needed immediate dental care, 47 per cent required dental care within the next few months, and only 13 per cent required no dental

care. If we say our daily client load is 15 visits a day and if half require immediate dental care and if half of those do something about it, then we will have 3-4 cases of dentistry a day. Let's say that the average dentistry costs \$100; that is an average of an extra \$300-\$400 per day. On top of that, there are additional spin offs like nail trims, blood work, baths, vaccines etc. . .

Lastly, and the most important reason for me, is personal satisfaction. I take great pride in taking a grade five periodontal case and making that mouth functional and healthy. The owner whose older dog's mouth had severe periodontal disease, yet two weeks after a thorough dental prophylaxis says that her dog is a puppy again, is far more rewarding to me

than financial remuneration. Also, it is thrilling to be able to take a broken tooth and restore it with a gold crown.

If veterinary dentistry is going to expand and continue to grow as a medical modality, we must recognize oral disease before it becomes irreversibly destructive. Just because our educational institutions did not teach us much about veterinary dentistry does not absolve us from medical responsibility. We can no longer be blind to oral health and hygiene when we consider our patients' health. Our clients are demanding this service. In veterinary college, we learned the anatomy, physiology, and histology of veterinary dentistry; but, we were poorly informed regarding the skills and applications necessary in clinical practice. In short, we

were taught two things: 1) if the dentition was unclean, scale them; 2) the techniques of extraction. The old saying "When in doubt, pull it out" was applied. We were told to go to great lengths to save an eye or a limb, but when it came to dentistry, the answer was extraction or, worse yet, leave it alone.

In 1977, the American Veterinary Dental Society was formed and has been a leading force in the advancement of veterinary dentistry. It has grown into one of the largest veterinary clinical specialty societies in the world, with members on four continents. The membership is mainly composed of veterinarians, but also includes many dentists, dental hygienists and veterinary technicians. The Society's journal progressed from a single page newsletter to a printed journal with several associate editors. The Society holds annual scientific meetings as well as wet labs. Initially, veterinarians had to use the techniques and equipment from the human dental field; but through the American Veterinary Dental Society's encouragement, there are now many companies offering specialized veterinary dental equipment.

With the encouragement of the American Veterinary Dental Society, an Academy of Veterinary Dentistry was established in 1986 and held its first examination and induction of members in 1987. The objective of the Academy is to promote the advancement of standards in the art and science of veterinary dentistry and to establish a certifying agency for those individuals who have obtained advanced training and expertise in veterinary dentistry. The Academy holds an annual scientific meeting presenting the most recent advances in veterinary dental disease and techniques.

There are a few veterinary colleges in the United States which presently offer dental rotations for their fourth year students. In the very near future, certain veterinary colleges in the United States will be offering postgraduate residency programs. Veterinary dentistry, as you can see, is a rapidly growing field and should not be overlooked. Δ

Dr. Anthony's veterinary medicine practice in Vancouver is, he says, "a veterinary dental referral practice". He covers "the whole spectrum" of dental procedures — endodontic therapy, orthodontics, etc., and "right now we are starting to do implants, with the assistance of an oral surgeon". Dr. Anthony does referrals throughout the province of British Columbia and gives lectures all over the North American continent. He would welcome calls from dentists to discuss the nature of his practice.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	October 31, 1988	September 30, 1988
Bond & Mortgage Fund	63.71495	62.34994
Common Stock Fund	14.13339	13.76220
Money Market Fund	42.01607	41.70563
Balanced Fund	26.04490	25.38787

Interest rates:

G.I.C. Fund Term	*Interest rates as at	
	October 31, 1988	September 30, 1988
1 yr	10.35%	10.60%
2 yr	10.50%	10.70%
3 yr	10.60%	10.85%
4 yr	10.60%	10.85%
5 yr	10.60%	10.85%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

October 31, 1988	September 30, 1988
\$98,762,533	\$97,630,692

For further information:

Write:
 **CDSPI**
 Retirement Services Dept.
 Suite 600
 2 Lansing Square
 Willowdale, Ontario
 M2J 4Z3

or phone, toll-free:
 Western and Atlantic Canada
 and Ontario Area Code 807
 only 1-800-268-5418
 Quebec and Ontario, (except Area
 Code 807) 1-800-268-3411
 Metro Toronto Area 497-7117

Montreal to host V International Conference on AIDS in June 1989

STOCKHOLM — As the IV Conference wound down in the Swedish Capital, attention shifted to Canada, host country of the V International Conference on AIDS, which will take place in Montréal, June 4-9, 1989.

About 180 Canadians were in attendance at the Conference including Thérèse Lavoie-Roux, Quebec Minister of Health, Elinor Caplan, the Ontario Health Minister, and Dr. John Collins, Minister of Health for Newfoundland. Representing the Canadian co-sponsors were Ivan Head, President of the International Development Research Centre and Alastair J. Clayton, Director General of the Federal Centre for AIDS, Department of National Health and Welfare.

"I can assure participants that Canada will continue the tradition of bringing together leading researchers from around the world concerned with AIDS", Ivan Head said at the Conference.

Mr. Head underlined the importance of continued dialogue and an open and free exchange of information and research findings on all aspects of the AIDS pandemic. "Such exchange is essential if we

are to prevent and control the spread of AIDS and reduce some of the hysteria that surrounds the disease", he said.

Planning is underway for the Montreal Conference, to be co-sponsored by the World Health Organization, the International Development Research Centre and the Health and Welfare Canada; a partnership that reflects the seriousness of the global issues surrounding AIDS.

Attendance at the first conference in Atlanta, Georgia, was heavily weighted in favour of those with a bio-medical interest. By the III Conference in Washington, D.C., the focus began to shift, to include a recognition that AIDS

touches almost every human activity and social process. The IV Conference in Stockholm continued this trend and the theme of the Montreal Conference — "AIDS: The Scientific and Social Challenge" — formally affirms that the prevention and control of AIDS necessitates a scientific and social partnership.

Participants at the V Conference will be drawn from both the bio-medical and health-care disciplines, as well as from sociology, psychology, law, ethics, education, community-based AIDS organizations and the public sector. Attendance at the Montreal Conference is expected to reach 10,000 delegates. Δ

Yukon dental group enjoys lectures and adventure

In late June and early July, the Yukon Dental Association played host to a very successful gathering which combined a weekend of continuing education lectures, in Whitehorse, with an eight-day canoe trip down the Yukon River to Dawson City.

Dr. Carl Hawrish of the University of Alberta spoke on Advances in the field of Endodontics, while Dr. Ron Boyar of the University of Manitoba gave a presentation on Medical Emergencies in the Dental Practice.

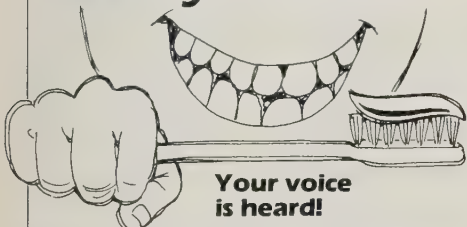
Warm, sunny weather typical of the Yukon's central interior region, favored the canoe trip. A novel feature of the trip was the very long days. Sunset occurred about 11.30 p.m. and sunrise followed a short five hours later, about 4.30 a.m. Little paddling was necessary because the strong river current whisked the canoes along at a brisk six miles per hour. This enabled the canoeists to enjoy the scenery and wildlife along the river banks.

Because the Yukon River was the principal highway for the thousands who stampeded to the Klondike Gold Rush in the 1890s, there are a few ghost towns and numerous other points of interest along its banks, which were visited by the group.

The high point of the trip was at its end — Dawson City — once the largest city in the West, north of San Francisco. The group stayed in Dawson City for two days; gambling (legal!) at Diamond Tooth Gertie's and visiting the many attractions in this almost fully restored gold rush town, before the long drive back to Whitehorse.

Another program is being planned for the summer of 1989 when the outdoors component will be a raft trip down the Firth River. The Firth, which flows into the Beaufort Sea, is the Yukon's northernmost, and its course is through the summer breeding grounds of vast herds of caribou. This will be the most ambitious outing to date undertaken by the Yukon Dental Association. Details of this expedition will be available early in 1989. Δ

Did you know?



Last year Yvonne Knazan, Community Dental Health Coordinator at the University of Manitoba's Faculty of Dentistry, noticed that Warner Lambert's promotional pamphlet for Efferdent did not emphasize brushing as an effective plaque remover in denture cleansing. She wrote the company.

Warner Lambert's product supervisor, Mr. Michael Sachter replied, thanked Ms. Knazan for her constructive criticism and revised the pamphlet to read . . .

"Brushing, an important method of plaque control, is best done with a special cleanser. . ."

DENTAL HEALTH MONTH '89

Let's Celebrate!



Dental Health Month is coming. Get ready for the celebration!

Last year we introduced you to **Bob** and the **5 Point Prevention Plan** for Dental Health Month.

This coming April they're back on table talkers, balloons, wallet cards, buttons and bumper stickers to help Canadians celebrate that most warm and appealing proof that good dental health pays off—the **SMILE**.

The Canadian Dental Association's 5 Point Prevention Plan

1. **Don't rush your brush.** Brush your teeth carefully at least once a day. Use a soft brush. Brush for two minutes. Brushing for less than two minutes is not enough. Brushing for more than two minutes is not better.
2. **Clean between.** Use floss or interdental brushes to clean between your teeth. Flossing is important because it removes plaque and food particles that a toothbrush cannot reach.
3. **Eat, drink, but be wary.** Eat a healthy diet. Limit sugary and starchy foods. Drink water. Avoid sugary drinks. Limit alcohol. Don't smoke.
4. **Check your gums.** Check your gums for signs of gum disease. If you notice red, swollen, or bleeding gums, see your dentist.
5. **Don't wait until it hurts.** See your dentist for regular checkups and professional cleanings. Regular dental visits are the best way to prevent trouble and answer your questions.

Dental Health Month '89 is going to be **A Celebration of the Smile**, and we invite everyone to join us in the fun.

As dental professionals there's a lot you can do to make this celebration a rousing success. Throw a **Keep Smiling party!** Start a **Keep Smiling parade!** Send **Bob Balloons** to the Mayor! Organize a **Keep Smiling Fun Run challenge!**

And if **Keep Smiling** table-talkers, buttons, balloons and bumper stickers are not enough to keep your community smiling, then watch for the January issue of the Journal for an announcement of some unique celebration tools.

DENTAL HEALTH
LET'S KEEP IT
Good For Life

Dental Awareness Program Update

DENTAL HEALTH MONTH 1989 A celebration of the smile

Dental Health Month 1989 is key to the whole Dental Awareness Program. It is a time when the dental profession across Canada comes out of its offices and into malls, seniors' centres, sports arenas, schools and day care centres to educate people about the importance of good dental care.

This year, Dental Health Month will also be a time to celebrate — to CELEBRATE THE SMILE.

You'll see that Bob and Keep Smiling are back and so is the 5 Point Prevention Plan. But the framework within which they will be presented to Canadians is through A CELEBRATION OF THE SMILE.

This idea will dominate the planning and development of promotional materials. Its strength is that it directly establishes the dental profession as one that is warm, human, and approachable. As evidenced by the recent Gallup poll findings on attitudes and behaviour towards dental health which shows a sharp reduction in the anxiety levels attending visits to the dentist, this approach is already successful.

So, get ready to celebrate in April. To help you get ready, look for a double-page ad/order form in the next three issues of the Journal. Everything is there to help you make April '89 A CELEBRATION OF THE SMILE.

Dental Health Month '89 Poster

Just a peek at what's to come in Dental Health Month '89 — The centrepiece of next April's campaign will be an extraordinary poster that will capture the spirit of Dental Health Month and the whole idea of the smile.

A top Canadian illustrator has been commissioned to interpret visually the concept of A Celebration of the Smile! Each poster will bear the Keep Smiling message; but the illustrator will conceive a design consistent with the message in his or her own artistic style.

It's a tough assignment to capture the warmth and pleasure that a smile brings,

while at the same time embodying the excitement of a celebration, of a month-long festival. But the product, is bound to create excitement and will be of such quality that it will find a permanent place on the wall of dental offices across Canada.

Watch for it!

Selecting a Dentist: How One Study says Patients do it

A recent study published in the Journal of Health Care Marketing (Quarterly Publi-

cation of the American Marketing Association) sheds considerable light on what criteria "consumers" use to select a physician or dentist for treatment or consultation.

The study, conducted by F.G. Crane, Assistant Professor of Marketing at Dalhousie University and J.E. Lynch, Senior Lecturer and Head of Department, University of Bradford Management Centre, U.K., was based on interviews, many of them in-depth, with 100 adults.

The results were summarized with respect to what the researchers called 'top of mind' and 'share of mind' criteria. 'Top of mind' refers to the criteria named first in a free-response situation. **Respondents clearly thought first about courtesy (38 per cent) and competence (34 per cent) as the basis on which they select a dentist, followed by reputation (8 per cent), interpersonal skills (8 per cent), price (8 per cent), and access/availability (4 per cent).**

Respondents were also allowed to list more than one criteria, and the results were identified as the 'share of mind' occupied by the various criteria. **Again, courtesy and competence, at 29 per cent and 28 per cent respectively, maintained their dominant position in people's minds. However, price moved in to third place, occupying 13 per cent of their "share of mind".**

As the researchers pointed out, "It is often difficult for consumers to perceive the criteria directly and they are apt to rely on surrogate measures to assess such criteria." These surrogate measures, or "cues", are used to evaluate the dentist's service. The study found that the key cues used in selecting a dentist are personal referral (94 per cent), demeanour of supplier (90 per cent), facilities (88 per cent) and price (54 per cent).

The study concluded that "The consumer uses such cues to develop a perception of the service offering. If physicians and dentists can manage these cues effectively, the consumer can perceive the service appropriately." Δ

Keep Smiling



CANADIAN DENTAL ASSOCIATION

Burning mouth syndrome

Sensation de brûlure buccale

1. Albert, D. "Mercury allergy as a cause of burning mouth." *British Dental Journal*. Mar. 22, 1986, v. 160, no. 6, pp. 186-7.
2. Ali, A. and others. "The burning mouth sensation related to the wearing of acrylic dentures; an investigation." *British Dental Journal*. Dec. 20, 1986, v. 161, no. 2, pp. 444-7.
3. Browning, S. and others. "The association between burning mouth syndrome and psychosocial disorders." *Oral Surgery Oral Medicine Oral Pathology*. Aug. 1987, v. 64, no. 2, pp. 171-4.
4. Dworkin, S.F. and Burgess, J.A. "Orofacial pain of psychogenic origin: current concepts and classification." *Journal of the American Dental Association*. Oct. 1987, v. 115, no. 4, pp. 565-71.
5. Hampf, G. and others. "Psychiatric disorders in orofacial dysaesthesia." *International Journal of Oral and Maxillofacial Surgery*. Aug. 1987, v. 16, no. 4, pp. 402-7.
6. Hampf, G. "Somatic and psychic aspects of orofacial dysaesthesia." *Proceedings of the Finnish Dental Society*. Suppl. 83: 2-3, pp. 1.
6. Glass, R.T. "Other factors in infections: the transmission of disease." *Gerodontology*. Aug. 1986, v. 2, no. 4, pp. 119-20.
7. Gorsky, M. Silverman, S. Jr, and Chinn, H. "Burning mouth syndrome: a review of 98 cases." *Journal of Oral Medicine*. Jan-Mar. 1987, v. 42, no. 1, pp. 7-9.
8. Goss, A.N. "Poly dental addiction." *Australian Dental Journal*. Dec. 1986, v. 31, no. 6, pp. 420-3.
9. Grushka, M. "Burning mouth syndrome: pain disorder remains difficult to treat." *Ontario Dentist*. Feb. 1987, v. 64, no. 2, pp. 26-30.
10. Grushka, M. "Clinical features of burning mouth syndrome." *Oral Surgery*

Oral Medicine Oral Pathology. Jan. 1987, v. 63, no. 1 pp. 30-6.

11. Grushka, M., Sessle, B.J. and Howley, T.P. "Psychophysical assessment of tactile, pain and thermal sensory functions in burning mouth syndrome." *Pain*. Feb. 1987, v. 28, no. 2, pp. 169-84.
12. Grushka, M., Sessle, B.J. and Miller, R. "Pain and personality profiles in burning mouth syndrome." *Pain*. Feb. 1987, v. 28, no. 2, pp. 155-67.
13. Katz, J., Benoliel, R. and Leviner, E. "Burning mouth sensation associated with fusospirochetal infection in edentulous patients." *Oral Surgery Oral Medicine Oral Pathology*. Aug. 1986, v. 62, no. 2, pp. 152-4.
14. Lamey, P.J. and Lamb, A.B. "The burning mouth sensation related to the wearing of acrylic dentures." *British Dental Journal*. Mar. 7, 1987, v. 162, no. 5, pp. 175.
15. Lamey, P.J., Lamb, A.B. and Forsyth, A. "Atypical burning mouth syndrome." *Contact Dermatitis*. Oct. 1987, v. 17, no. 4, pp. 242-3.
16. Lamey, P.J. and Lamb, A.B. "Prospective study of aetiological factors in burning mouth syndrome." *British Medical Journal*. [Clin. Res.] Apr. 1988, v. 296, no. 6631, pp. 1243-6.
17. Lamey, P.J. and Lewis, M.A. "The tongue: 7. Burning mouth syndrome." *Dental Update*. May 1986, v. 13, no. 4, pp. 185-6, 188, 190-2.
18. Lamey, P.J. and others. "Vitamin status of patients with burning mouth syndrome and the response to replacement therapy." *British Dental Journal*. Feb. 8, 1986, v. 160, no. 3, pp. 81-4.
19. van der Ploeg, H.M. and others. "Psychological aspects of patients with burning mouth syndrome." *Oral Surgery Oral Medicine Oral Pathology*. Jun 1987, v. 63, no. 6, pp. 664-8.
20. Van Joost, T. "Contact allergy to denture materials in the burning mouth syndrome." *Contact Dermatitis*. Feb. 1988, v. 18, no. 2, pp. 97-9.
21. Zegarelli, D.J. "Burning mouth: an alternative explanation for some patients

with diabetes mellitus and pernicious anemia." *Annals of Dentistry*. Summer, 1987, v. 46, no. 1, pp. 23-4.

Recent Acquisitions

- Gibilisco, J.A. *Stafne's oral radiographic diagnosis*. 5th edition, W.B. Saunders: Philadelphia, 1985.
- McKim, W.A. and Mishara, B.L. *Drugs and Aging*. Butterworths: Toronto, 1987.
- Witt, E., Gehrke, M. and Shaye, R. *Removable appliance fabrication*. Quintessence: Chicago, 1988.
- Dental Clinics of Noroth America. *Adult orthodontics*. W.B. Saunders: Philadelphia, July 1988.

One copy of the above articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982.

Telephone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736

La bibliothèque de l'ADC offre pour 5\$ à ses membres et pour 10\$ aux non membres une copie des articles ci-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherches bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982.

Téléphone: 613-523-1770
ext: 223; 226.
ENVOY: CDN.DENTAL.LIB
FAX: 613-523-7736



Mr. Robert Viau, President, DIAC

Robert Viau of Johnson & Johnson Inc., was named President of the Dental Industry Association of Canada at its annual general meeting.

Other executives named to its Board of Directors were: Mr. Arthur Zwingenberger of Sci-Can Inc., as Vice President; Mr. Gary Jarvis of Ash Temple Limited, as Treasurer; and directors — Mr. George Osterbauer of Dentsply Canada Ltd.; Mr. Robert Dickson of DDL/Healthco; Mrs. Erla Kay of Southam Communications; Mr. Bill Fotty, Canadian Dental Supply and Mr. John Crisp of Medi-Dent Service Ltd.

The Immediate Past President is Mr. Robert Cajolet of Denco Canada Dental. △

The Canadian AIDS Society (CAS) a coalition of Community-based AIDS organizations from coast to coast, is now open for business in its new national office in Ottawa.

CAS represents 29 groups across Canada that work locally, mostly through volunteers, to prevent the spread of AIDS and to help persons affected by AIDS or related conditions.

"CAS is now better able to support the goals of our member organizations and advocate for action on serious issues in the fight against AIDS," said Jeffrey Braff, President of the Society and Chairman of the Board.

"We'll focus on the need for Canada to develop a comprehensive national strategy on AIDS and on securing adequate funding for community groups active on the front lines of the crisis," added Richard Burzynski, Director General of the CAS.

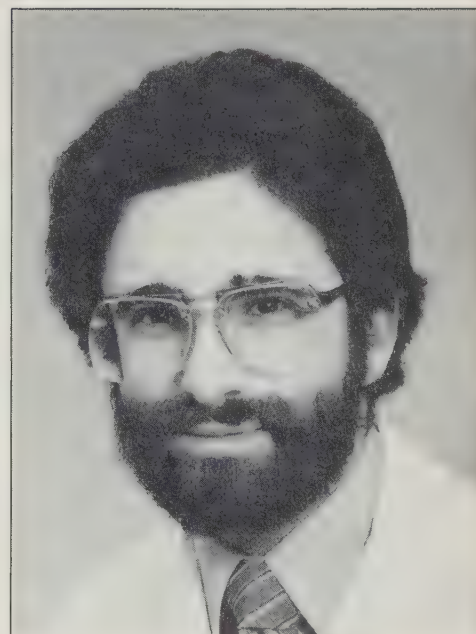
Other priorities are: educating the public about safer sex practices; securing access to a wider variety of AIDS drugs for persons living with AIDS and persons who have tested positive for the AIDS virus; eradicating the stigma attached to AIDS; and, studying the implications of such controversial measures as quarantine.

(For those seeking further information, the new office address is: Canadian AIDS Society, 267 Dalhousie Street, Ottawa, Ont. K1N 7E3. The telephone number is (613) 230-3580). △

A recent edition of the FDI Newsletter states that two British dental schools — at Dundee in Scotland and at University College, London — should close, with a loss of 95 student places, according to a recommendation by a working party of the body which allocates funding to UK universities.

It has also been recommended that the dental undergraduate course should be extended by two terms (trimesters), and that a one-year period of mandatory vocational training for all categories of dental practice be introduced immediately, increasing to two years as soon as possible. △

The American Academy of Oral Medicine recently developed and approved a position statement on Infectious Disease and Human Immunodeficiency Virus Infection. Approval was given during the Academy's annual meeting in San Francisco. The primary responsible group was the Dental-Medical Relations



Dr. Joel B. Epstein

Committee, chaired by **Joel B. Epstein, DMD, MSD** of the Division of Dentistry, Cancer Control Agency of British Columbia.

Dr. Epstein's articles have appeared in this Journal and he was instrumental in the development of CDA's Infection Control Guidelines in February, 1988.

The Academy's guidelines are as follows:

The American Academy of Oral Medicine recognizes the responsibility of dentistry to provide care to all patients, including those with infectious disease. It supports the infection control guidelines of the Centres for Disease Control and the American Dental Association's policy statement on AIDS, HIV infection and the practice of dentistry.

An objective of the American Academy of Oral Medicine is to provide expertise in education relative to the diagnosis and management of the infectious patient. When referral is indicated, this should be made to centres which provide the appropriate facilities and multidisciplinary expertise for consultation and treatment. The procedures for providing comprehensive care include diagnosis and treatment or appropriate referral for management. △

Dental care for seniors

As chairman of the Ontario Committee on Dental Care For Seniors In Need, I am replying to your editorial which appeared in the August journal. Many of the points raised were pertinent to the dental well-being of seniors — increasing numbers of seniors, lack of formal training opportunities for dental professionals, lack of programs to meet the dental needs of our aging population (exacerbated by a dearth of data to facilitate planning).

I am somewhat concerned, however, by the reference to an "Ontario study commission" which a "reliable dental association source" — indicated — has become a 'political football — it's not pragmatic but politics'".

The objectives of the committee were established by the Minister of Health, Mrs. Elinor Caplan for the committee's direction and they may be of interest to the profession:

(1) To review and assess available information on dental status of Ontario residents age 65 and older and assess availability, accessibility and adequacy of current programs in meeting these needs.

(2) To set goals for the restoration and maintenance of dental health for this age group and identify priority target groups where assistance is most needed and most effective.

(3) To define essential basic preventive and curative services and present systems for possible delivery mechanisms that could be used to provide service to the target groups identified.

The Minister directed members of the committee to set aside narrow personal or professional interests and to work together for the benefit of Ontario's senior citizens. Since then, the committee

has been left entirely to its own devices and allowed to choose the path it feels will achieve this goal. If the term pragmatic means "relating to matters of fact or practical affairs", then this has been a pragmatic committee.

One can only guess at the reasons why your "reliable dental association source" felt it necessary to indulge in this sort of innuendo. It does seem clear however, that a journal as prestigious as the Journal of the Canadian Dental Association should not look upon backyard gossip as a source of editorial comment.

Much to your credit, the Journal is seen by the dental community as a source of reliable information. For that reason, the content of the Journal's editorials should pass the same high standards of accuracy as is required of its scientific articles. Δ

*Dr. T.W. Hicks,
Chairman of the Ontario Committee on
Dental Care for Seniors,
Midhurst, Ontario.*

Editor's Note: The Journal has spoken at length to Dr. Hicks and both parties have mutually agreed to withhold any further public comment until the Minister of Health from Ontario has received and ruled on the report from the Committee.

Re: New Customs Commercial Postal System

A number of our members (Dental Industry Association of Canada) have brought to our attention a News Update item which was published in the August issue of the CDA Journal.

The very nature of this Update may imply that individual practitioners are encouraged to by-pass the current supply system in Canada (manufacturers, wholesalers, retailers) by ordering directly from non-Canadian based companies.

Since several DIAC members advertise in the CDA Journal, perhaps the CDA Journal could act in a supportive manner toward its advertising customer base,

which forms an important part of the "official" sourcing system in this country. Δ

*R. Viau,
President, DIAC*

Re: DIAC Letter on CDA Customs Information Article

I am concerned to learn of DIAC's criticism of the CDA Taxation Committee's article on the new Harmonized Classification System being used by Revenue Canada — Customs.

The Dental Industry's letter implies that the article was to encourage dentists to bypass the current dental supply system in Canada. Nothing could be further from the truth!

The information was provided in response to requests from CDA members who, in many cases, purchase dental supplies outside of Canada that are *not* available in Canada through local dealers.

To suggest that not publishing the publicly available new Custom Tariff Numbers would deter Canadian dentists from ordering from non-Canadian based companies, may not be a proper conclusion.

The Dental Industry and its association have been strong financial and moral supporters of many activities of our profession. We are grateful for this support and we require such support to continue in the future.

The Taxation Committee provided public information to members, without any intent to harm the Canadian Dental Supply System. The Committee is concerned that DIAC has incorrectly interpreted our intent as being uncooperative and harmful. Δ

*Robert N. Hicks, DDS, MS,
Chairman, CDA Taxation Committee*

Hospital dental departments engaged in HIV, AIDS research

I have read the letter by Dr. Gornitsky in the September issue of the CDA Journal, and I would like to respond.

Dr. Gornitsky states that since 1986, they have been involved in clinical studies. They have seen, according to his letter, 143 patients. Certainly, we have seen more than that number in Vancouver but have not done so on a "regular basis". By this, I indicate a prospective basis in order that such findings as prevalence of disease can be identified in a patient population. I do not believe that they have reported any of this data to date and certainly, the numbers are, "not large". In addition, the "numerous papers", that have been published do not refer specifically to oral manifestations, recognition, diagnosis or its management. This is certainly borne out in the references provided.

Thus, in relation to the statements made in the article that focus on oral/dental findings, recognition and management, I believe the comments made in our previously published paper in the Canadian Dental Association Journal to be accurate. Certainly, there is increasing interest, awareness and work being performed in this area in Canada and we will look forward to findings of both their clinical experience and research in addition to our own. Thank you. Δ

J.B. Epstein, DMD MSD

Division of Dentistry
Cancer Control Agency of British Columbia,
Vancouver, B.C.

Clinical use of triazolam

This letter relates to an article published in the Journal. (JCDJ Vol. 54: No. 7, p. 511-514).

The use of triazolam as an oral sedative prior to dental procedures was recently reviewed in the Journal by Doctors Young and Mason.¹ There are a number of points I should like to raise in relation to this useful review article.

Cimetidine, an H_2 -receptor antagonist, also binds to cytochrome P-450 in the liver and thereby inhibits the metabolism of a relatively large number of drugs including many, but by no means all, benzodiazepines.^{2,3} Cimetidine impairs the total metabolic clearance of those benzodiazepines metabolized mainly by hepatic oxidation (e.g. diazepam, chlor-diazepoxide, nitrazepam, alprazolam and triazolam), but do *not* alter the clearance of those benzodiazepines biotransformed mainly by glucuronide conjugation (e.g. oxazepam, lorazepam and temazepam).^{2,3}

Triazolam is reported to be approximately eight times more *potent* than diazepam as a hypnotic,⁴ but there is probably rather little difference in their *effectiveness* as hypnotics if equi-effective doses of each are administered.

A review of the effects and metabolism of benzodiazepines in the geriatric population³ concluded that the increased sensitivity of such patients to the pharmacological effects of benzodiazepines in general means that caution should be exercised in the clinical use of *all* benzodiazepines in this patient group.

The dosage of triazolam suggested for use in this review article is 0.25-0.50 mg. It was my understanding that the manu-

facturer recommends that a dose of 0.25 mg or less generally be employed as this is associated with a lower incidence of unwanted effects. Are there published controlled double-blind studies comparing the relative effectiveness and safety of diazepam and triazolam for sedation prior to dental procedures?

Finally, reference is made to the management of acute emergencies following the use of benzodiazepines such as triazolam and the need for the maintenance of a clear airway, respiration and circulation. In this situation, the use of the benzodiazepine antagonist, flumazenil (Ro 15-1788),⁵ could be a valuable adjunct. Δ

David M. Paton, MD, DSc, FRCPC, FRACP
Chairman, Division of Physiology and Pharmacology
and Chairman, Department of Oral Biology
University of Alberta
Faculty of Dentistry

References

1. Young, E.R. and Mason, D. Triazolam: an oral sedative for the dental practitioner. *J. Canad. Dent. Ass.* Vol. 54: 511-514, 1988.
2. Gerber, M.C., Tejwani, G.A., Gerber, N. and Bianchine, J.R. Drug interactions with cimetidine: an update. *Pharmac. Ther.* 27: 353-370, 1985.
3. Greenblatt, D.J., Divoll, M., Abernethy, D.R., Oehs, H.R. and Shader, R.I. Benzodiazepine kinetics: implications for therapeutics and pharmacogeriatrics. *Drug Met. Rev.* 14: 251-292, 1983.
4. Pakes, G.E., Brogden, R.N., Heel, R.C., Speight, T.M. and Avery, G.S. Triazolam: a review of its pharmacological properties and therapeutic efficacy in patients with insomnia. *Drugs* 22: 81-110, 1981.
5. O'Sullivan, G.F. and Wade, D.N. Flumazenil in the management of acute drug overdosage with benzodiazepines and other agents. *Clin. Pharmac. Ther.* 42: 254-259, 1987.



THE SUCCESSFUL DENTAL PRACTICE

ONE DAY SEMINAR

Fully accredited by the Academy of General Dentistry
Presented by The Institute for Practice Development

WHEN:
1st Sat. each month
July 1988-June 1989

WHERE:
HYATT Orlando-
Just minutes from Disney World

Faculty:
Stephen D. Eingorn, D.M.D.

Doctors (in advance) \$175.00 Auxiliary or Spouse \$95.00

(800) 537-1726
(813) 351-7699

SKI WHISTLER & BLACKCOMB

TAX DEDUCTIBLE MEDICAL/DENTAL SEMINARS
January thru March '89.

**ATTENDANCE LIMITED.
CALL OR WRITE TODAY...**

Whistler Seminars inc.

Ste. 218-2438 Marine Dr., West Vancouver, B.C.
V7V 1L2 ph. (604) 926-4078

THE FIRST NON-Rx ANTIMICROBIAL ACCEPTED TO HELP CONTROL SUPRAGINGIVAL PLAQUE AND GINGIVITIS

PERCENT REDUCTION OF PLAQUE AND GINGIVITIS SCORES: LISTERINE® VS. CONTROL FROM BASELINE TO 6 MONTHS

**Helps Prevent
Plaque and Gingivitis¹**

**Reduces Existing
Plaque and Gingivitis²**

Plaque measurements were made using the Turesky
Modification of the Quigley-Hein Index,³ gingivitis
measurements using the Modified Gingival Index.⁴

NO REPORTS OF CLINICAL SIDE EFFECTS, EVEN WITH REGULAR AND LONG-TERM USAGE:

- Did not cause extrinsic tooth stain
- Did not promote calculus formation
- Did not cause mucosal aberrations
- Did not alter taste perception
- Did not promote microbial resistance

Dosage and Administration:

Instruct your patients to rinse for 30 seconds with 20 ml of Listerine twice a day in addition to brushing, flossing, and regular dental care.

DESTROYS A BROAD SPECTRUM OF PLAQUE BACTERIA*

Plaque Microorganisms Susceptible to Listerine Antiseptic	
Gram-Positive Facultative Cocci	<i>Streptococcus sanguis</i> <i>Streptococcus mutans</i> <i>Streptococcus salivarius</i>
Gram-Positive Facultative Rods	<i>Lactobacillus</i> <i>acidophilus</i>
Gram-Positive Anaerobic Rods	<i>Actinomyces viscosus</i>
Gram-Negative Anaerobic Rods	<i>Bacteroides intermedius</i> <i>Fusobacterium</i> <i>nucleatum</i> <i>Leptotrichia buccalis</i>
Yeasts	<i>Candida albicans</i>

*in vitro testing

Listerine contains a proven combination of thymol, eucalyptol, methylsalicylate and menthol in a hydroalcoholic vehicle. These antimicrobial ingredients are active against the plaque microorganisms commonly associated with gingivitis.

- DePaola LG, et al: Chemotherapeutic inhibition of supragingival plaque and gingivitis development. *J Dent Res* 65:274 (Abstract 941), 1986.

In this six-month, double-blind study, twice-daily use of Listerine Antiseptic with regular oral hygiene following professional prophylaxis inhibited the development of both supragingival plaque and gingivitis by 34% compared to the hydroalcoholic control¹

	Listerine	Control
Plaque Index	1.15	1.75
Gingival Index	0.92	1.39

- Lamster IB, et al: The effect of Listerine Antiseptic on reduction of existing plaque and gingivitis. *Clin Prev Dent* 5:12-16, 1983.

This six-month, double-blind study demonstrated the efficacy of twice-daily use of Listerine in reducing plaque and gingivitis. Scores measured a 20.8% reduction in supragingival plaque and 27.7% reduction in gingivitis in the Listerine group -- a significant improvement over normal oral hygiene alone for the Listerine group versus the vehicle control²

	Listerine	Control
Plaque Index	1.93	2.44
Gingival Index	1.20	1.66

- Turesky S, et al: Reduced plaque formation by the chloromethyl analogue of Vitamin C. *J Perio* 41:41-43, 1970.
- Lobene RR, et al: A modified gingival index for use in clinical trials. *Clin Prev Dent* 8:3-6, 1986.

WARNER LAMBERT

*Caution: Do not give to children under 6. Active
Ingredients: Alcohol 21.90% w/v, Eucalyptol 0.91% w/v,
Thymol 0.063% w/v, Menthol 0.042% w/v.

PAAB
CCPP



LISTERINE®

...First-line antimicrobial defense for your patients.

COUNCIL ON DENTAL THERAPEUTICS
AMERICAN DENTAL ASSOCIATION



"Listerine has been shown to help prevent and reduce supragingival plaque accumulation and gingivitis when used in a conscientiously applied program of oral hygiene and regular professional care. It has not been shown to have a therapeutic effect on periodontitis."

LOCAL ANALGESIA IN DENTISTRY

D.H. Roberts and
J.H. Sowray

1988. Wright Publishing — Bristol,
3rd Edition,
176 pp. \$27.50 US

This is the Third Edition of the original text which was published in 1970, and its purpose appears to have remained unchanged — that is, to provide a practical up-to-date guide to local anaesthesia as it applies to dentistry — for both dental students, as well as “seasoned” practitioners.

This rather attractively presented soft-cover edition is logically laid out in 15 chapters beginning with a section on the history of local anaesthesia and includes sections on pharmacology, armamentaria, anatomy, and finally the main thrust of the book, several sections on local anaesthesia techniques. There are also chapters on sedation techniques for dental patients as well as complications which may arise in the dental office.

There are 3 useful Appendices, the first of which summarizes techniques of local anaesthesia.

Appendix 2 is a summary of trade and generic drug nomenclature, while Appendix 3 is a conversion table for drug dosages. An excellent 10 page index concludes this concise book.

Each chapter is followed by a number of references and sources of suggested reading. The body of the text is not referenced directly, however. Each section of this book was indeed a pleasure to read, not only as a source of review, but each also contained many “gems” of knowledge. The book was very well illustrated with numerous black and white photographs. Although many of the references were some 30 years old, this does not in any way detract from the accuracy of the book. This third edition has been described by the authors as “a practical guide . . . (which) . . . affords a succinct account” of local anaesthesia for dentistry and this is indeed what it is. Further reading would be required for a solid knowledge of pharmacology, conscious sedation techniques, patient evalu-

ation and treatment of medical emergencies, all of which are briefly discussed in this book. In these areas, it is far from being comprehensive. Its main purpose appears to be a review of techniques — including several extra oral approaches of local anaesthesia and this it does well in a very step-by-step manner that allows the reader to readily comprehend each technique that is described.

This is a very worthwhile addition of the library of any dental student, general practitioner or oral and maxillofacial surgeon. Because of its precise language, easy-to-read format, and numerous photographs, it makes for valuable reading. Δ

This book was reviewed by:
Earle R. Young, BSc, DDS, BScD, MSc,
FADSA

Asst. Professor of Anaesthesia
Faculty of Dentistry
University of Toronto
Fellow in Anaesthesia
The Wellesley Hospital
Toronto.

‘FUNDAMENTALS OF TOOTH PREPARATIONS FOR CAST METAL AND PORCELAIN RESTORATIONS’

Herbert T. Shillingburg Jr.,
Richard Jacobi &
Susan E. Brackett

1987, Quintessence Publishing Co., Chicago
390 pages

A quick browse through a new book is always a temptation, more often done than not. A rapid look through “Fundamentals of Tooth Preparation” can only produce a sense of seeing something special. One or more colour plates appear on almost every page. The glossy paper and layout of pages results in a very favorable first impression . . . it stays with you as you go through the book.

The first three chapters contain the basis for the use of indirect restorations in replacing lost tooth structure and as retainers for various fixed appliances.

Chapter 1 titled “Biomechanical Principles of Preparations”, states and elaborates on the five principles governing the design and preparation for cast

metal or porcelain restorations. These principles are explained using three dimensional colour drawings and should be considered a must for every student and a review for every practitioner of dentistry. The incorporation of a table of enamel and dentin thicknesses in maxillary and mandibular teeth serves as a reminder of the leeway we have when preparing teeth for restorations.

Chapter 2, is called ‘Finish Lines and the Periodontium’. It covers the relationship of the cavosurface angle to the sealing ability of a casting and then describes the geometry of various types of axial tooth reduction. The explanations are greatly clarified by the use of the coloured drawings. The pages dealing with the concept of “biological width” is well presented and illustrated.

Chapter 3 on “Instrumentation” includes SEM photographs of the surface appearance of enamel and dentin which have been ground with various types of diamonds and finishing burs, this is a welcome addition to any text on tooth preparation.

The procedures for tooth preparation are comprehensively described in chapters 4 to 17. These include full veneer crowns, maxillary posterior three-quarter crowns, mandibular posterior three-quarter crowns, anterior three-quarter crowns, pin-modified three-quarter crowns, seven-eighths crowns, proximal half-crowns, inlays, MOD onlays, anterior porcelain-fused-to metal crowns, posterior porcelain-fused-to metal crowns, all-ceramic crowns, preparation modifications for damaged teeth and preparation modifications for special situations. There is little omitted in the way of preparation procedure and design for each type of restoration. These are presented using Dentoform models, colored diagrams as well as clinical cases. The clarity of the photographic material and the diagrams, as well as, the logical sequence, allow for ready comprehension. The authors make use of several basic tools as aids in the preparation of the various tooth surfaces. The first is the use of a silicone matrix, fabricated from a putty mix, which when sectioned and reapplied to the prepared and adjacent teeth gives the operator the advantage of visualizing the amount of tooth structure

removed. The second involves the use of "depth-orientation grooves" generated by instruments of known diameter. These act as guides to the depth of the cut and controls the amount of tooth structure removed.

Those familiar with the Shillingburg, Hobo, and Fisher book of 1974, "Preparations for Cast Restorations", will find some similarity in the format. However, the new book is more comprehensive and includes clinical examples and many more figures. Additionally, modification of several of the preparations has been made in this recent book. For instance, the gingival bevel of the shoulder in the anterior porcelain fused to metal crown preparation has been changed to a sloped-shoulder, so as to produce little or no metal collar. As well, the internal line angle at the gingival-axial junction is no longer "accentuated". The authors do not make it clear whether they advocate a rounded internal angle, as the diagrams show a distinct internal line angle.

The inclusion of pin-modified three-quarter crowns, inlays, seven-eighths and one-half crowns may seem outdated in this day of porcelain and aesthetics. However, their inclusion is a reminder that these restorations should still be considered an important part of the armamentarium of the restorative dentist.

In Chapters 15 and 17, the authors have included preparations for the more recent developments in ceramic crowns and resin-bonded bridges. Material on modifying preparations for abutments for removable partial dentures are also discussed, while chapter 16 contains preparation modifications for damaged teeth. These modifications include restorations for both vital and non-vital teeth which have suffered various amounts of structural breakdown. Illustrated are the use of pins, grooves and boxes to add features in situations where overtapering or damage has caused the loss of retention. Clinical materials demonstrate their employment to correct overtapered axial walls, overextended box forms, fractured cusps and/or teeth with one or two cusps missing. The description of restorations of the endodontically treated tooth is very brief and could certainly use further elaboration.

Although practicing dentists may vary their preparations from those described in this book, there is still much to be gained from the clear and logical sequence of the author's presentation.

In summary, this book is a well-designed, comprehensive and attractive

text on the subject of tooth preparations for indirect restorations. I can readily recommend it to students, teachers and practitioners of restorative and prosthetic dentistry. Δ

*This book was reviewed by,
Dr. Edward Ostro, BSc, DDS
Associate Professor,
Department of Clinical Dentistry,
McGill University*

DENTINE AND DENTINE REACTIONS IN THE ORAL CAVITY

A. Thylstrup, S.A. Leach,
V. Qvist

1987, IRL Press, Oxford, Washington, DC.

This book is not for the dental practitioner. Indeed, it is only of interest for the dental research worker, and even then only of limited interest.

The book is a compilation of the 24 papers presented at a workshop organized by "The Research Group on Surface and Colloid Phenomena in the Oral Cavity presented under the auspices of the Council of Europe." Readers of the Canadian Dental Journal might have difficulty in making the connection between the somewhat esoteric name of this research group and dentine, but as the preface explains, the Group's objectives are "to create contacts between surface and colloid scientists and dental researchers in order to promote a multidisciplinary approach and the cross-fertilization of the ideas and expertise relevant to the oral cavity and so help to put the prevention of dental caries and periodontal disease on a scientific basis."

But I doubt that this laudable and somewhat pedantic objective has been achieved as the majority of contributors are dental research workers. Furthermore, almost all come from Europe and the contributors from North America (from two laboratories) have principal authors with European backgrounds.

Apart from this criticism of parochialism in both discipline and geography, I must also question the format of the publication. Papers presented at workshops are not subject to peer review — they are presented to stimulate discussion — and to my mind the only value in publishing the proceedings of a workshop is to present the discussions which follow the formal presentations as it is here that the truth will out. The preface makes refer-

ence to the many and lively discussions that took place and it must be asked why these discussions were excluded. Cost was probably a factor but organizers of workshops should consider this at the planning stage.

This volume is, therefore, destined to gather dust on the library shelves of both the contributors and dental school libraries, and a thought should be spared for the latter who nowadays have little money and an obligation to collect all contributions to the literature. Δ

*This book was reviewed by:
A.R. Ten Cate, BSc, BDS, PhD
Dean, Faculty of Dentistry
University of Toronto*

COMPLETE DENTURES

J.A. Hobkirk

[1987] Wright Publishing Co. Inc.
106 pages

This British textbook is published by Wright in that firm's Dental Practitioner Handbook series. The book is short, only 106 pages of written text, and is not a "cookbook" for dental students on how to make complete dentures. Instead it is meant for the general dentist and it gives an overview of the biological and mechanical principles of complete denture construction. Almost one third of the book, 32 pages, are devoted to diagnosis and treatment planning. These pages should serve as a good refresher for the dentist reading the book. Chapter 3, "Recording Impressions", gives some useful tips on which impression technique to use; muco-displacing, muco-static or a combination of the two techniques. Chapter 4, "Recording Jaw Relationships", describes and illustrates a simple technique for relating the occlusion rims using metal staples instead of using wax wafers or registration paste. Chapter 5, "Trial Dentures", has some valuable hints how to improve denture esthetics and illustrates differences using line drawings. Chapter 7, "Additional Procedures", covers a wide variety of topics including dental implants and the use of occlusal pivots to restore the posterior occlusion in patients who have a reduced vertical dimension of occlusion.

There is also an appendix to the book, "Control of Infection", that gives some guidelines on disinfection and sterilization. The author suggests that since den-

tal casts are not easily sterilized, duplicate casts should be used in the clinic and the master casts should be retained in the laboratory. The duplicates are destroyed at the end of the clinical session.

At the end of the book there is a good bibliography for each chapter. Unfortunately the references are not cited in the text and it is left to the reader to guess which reference refers to which paragraph in the text. The book also does not provide much information on dental implants, p. 100-101. The Branemark osseointegrated implant is mentioned as the most successful implant system, but the author does not believe that the development of implants has reached the stage where they are suitable for routine clinical practice.

In conclusion, this book would provide a useful update for the general dentist, but it does not have enough detail to be a reference textbook on complete denture construction. △

*This book was reviewed by:
Dr. Richard Price
Assistant Professor
Faculty of Dentistry
Dalhousie University*

Did you know?



There's Good News!! Dental offices (at least in the United States) have the third highest ranking category of start-up businesses most likely to survive. Physicians' offices were seventh??

According to a January 1988 study of nearly 1.5 million companies in United States of new ventures started between 1978 and 1987 in 236 business categories, the ten most likely to survive in descending order were . . . veterinary services, funeral services, **dentists' offices**, commercial savings banks, hotel/motels, campgrounds/trailer parks, physicians offices, barber shops, bowling/billards places and cash crops.



with **premier**

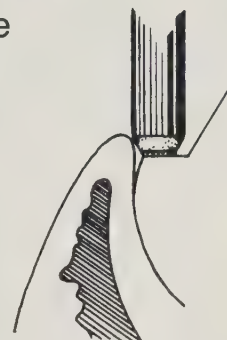
Two Striper®

Longer Lasting
Diamonds for Every Purpose

A safe and smooth finish.

The TGE is recommended for use in extended Flat Shoulder preparations as required for full ESPE VISIO-GEM, full porcelain or Cerestore® crowns.

The TGE enables the practitioner to impart a smooth finish on the floor of the preparation, without lacerating gingival tissue or creating undercuts around the cervical line. The diamond particles are contained only on the tip—not on the sides or bevelled corners of the instrument.



These TWO STRIPER Diamond Instruments are made with a patented bonding system which fuses diamond crystals permanently to the one piece hardened stainless shank. This results in faster, cooler cutting, eliminates typical stripping and peeling of diamond crystals, and significantly extends the instrument's working life as much as 4 times more than other dental instruments.



P.B.S.™ Note the fused bond directly to the diamond, channels for clearance, and exposure of diamond for cutting.



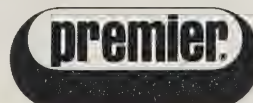
Electroplated—Note the build-up of metal plating and lack of true bond with the diamond crystal.

™PBS and TGE are trademarks of Abrasive Technology, Inc.

®TWO STRIPER is a registered trademark of Abrasive Technology, Inc.

®Cerestore is a registered trademark of Johnson and Johnson Co.

Available through
your dealer



Premier Dental Products Co., Box 111, Norristown, PA 19404, USA
Distributed in Canada by

Premier Dental (Canada), Ltd., Scarborough, Ont. M1W 3K5, Canada

Continuing Education

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Dalhousie University Faculty of Dentistry 5981 University Ave. Halifax, N.S. B3H 3J5	Halifax (Faculty of Dentistry)	Etched Metal Restorations — A Participation Course in Etched Maryland Restorations	Fixed Prosthodontics	Jan. 27, 1989, & April 15	Participation	Dr. Jack Gerrow, Dr. Richard Price	Open	\$255	GPs	Kate MacDonald (902) 424-1674
(As above)	Halifax (Faculty of Dentistry)	What's new in Dentistry?	General Dentistry	Feb. 10, 11, 1989	Lecture Participation	Dr. Andrew Thompson (co-ordinator)	Open	TBA	GPs Hygienists Assistants	(As above)
(As above)	Halifax (Faculty of Dentistry)	Comprehensive Maxillofacial Surgery Review	Oral and Maxillofacial Surgery	Feb. 20-24, 1989	Lecture Participation	Dr. David Precious (co-ordinator)	Limited to 25	\$995	Specialists Oral Surgeons	(As above)
(As above)	Halifax (Faculty of Dentistry)	Clinical Update on Oral and Maxillofacial Surgery	Oral Surgery	Feb. 25, 1989	Lecture	Dr. David Precious (co-ordinator)	Open	TBA	GPs	(As above)
McGill University Faculty of Dentistry 740 Docteur Penfield Montréal, P.Q. H3A 1A4	Montréal (Faculty of Dentistry) McGill	A Course in Advances in Periodontics	Periodontics	Feb. 3, 4, 1989	Lecture Demonstration	Perio Dept.	Open	\$310 DDS \$140 Hyg.	GPs Hygienists	Mrs. Olga Chodan (514) 398-7221
(As above)	Montréal (Faculty of Dentistry) McGill	Porcelain Laminate Veneers	Operative Dentistry/ Prosthodontics	March 10, 1989	Lecture Demonstration Participation	Dr. Pierre Lamontagne	Limited to 32	\$175 Lab Fee \$60	GPs Specialists	(As above)
(As above)	Montréal (Faculty of Dentistry) McGill	Re-evaluation of Enamel Structure and its Relationship to Clinical Dentistry	General Dentistry	March 3, 1989 (Evening)	Lecture	Dr. Hershey Warshawsky	Open	\$55	GPs Specialists	(As above)
(As above)	Montréal (Faculty of Dentistry) McGill	Clinical Findings in Human Heritable Defects in Teeth	Oral Medicine/ Diagnosis	April 5 (Evening)	Lecture	Ed. Shields	Open	\$55	GPs Specialists	(As above)
(As above)	McGill Faculty of Dentistry Montréal	Current Theory and Practice in Glass Ionomers, Resins and Bonding	Dental Materials/ Operative Dentistry	April 14, 1989	Lecture Demonstration Participation	Dr. Ivan Stangel	Limited to 32	\$175 Lab Fee \$50	GPs Specialists	(As above)
(As above)	McGill Faculty of Dentistry Montréal	Clinical Management of Problems Associated with Long-Term Perio-Prosthesis Patients	Prosthodontics	April 21, 1989	Lecture	Dr. Harry Rosen	Open	\$175	GPs Specialists	(As above)
(As above)	McGill Faculty of Dentistry Montréal	Applied Caries Risk Assessment and Management	Operative Dentistry	May 5, 1989	Lecture Demonstration Participation	Dr. Max Anderson	Open	\$175 DDS \$75 Hyg.	GPs Specialists Hygienists	(As above)
(As above)	McGill Faculty of Dentistry Montréal	Risk Management of Infectious Disease in Dental Practice	Infection Control	May 12, 1989	Lecture Demonstration	Dr. Mervyn Gornitzky	Open	\$175 DDS \$75 Aux.	GPs Specialists Hygienists Assistants	(As above)

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
McGill University Faculty of Dentistry 740 Docteur Penfield Montréal, P.Q. H3A 1A4	McGill Faculty of Dentistry Montréal	Golden Age of Renaissance Art: Fine Arts for Dental Practitioners	Humanities — Art History	June 9, 1989	Lecture	Dr. Bertos Rigos	Open	\$90	GPs Specialists Hygienists Assistants	Mrs. Olga Chodan (514) 398-7221
University of Manitoba Faculty of Dentistry 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Molar Endo- dodontics for the General Practitioner I, II & III	Endodontics	Feb. 3, 25, March 18, 1989	Lecture Partici- pation	Marshall Peikoff, DMD, MDS, Cert. Endo. FRCD(C)	Limited to 12	\$750	GPs Specialists	(204) 788-6631
University of Manitoba/Manitoba Dental Hygienists' Association 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Dental Hygiene Seminar II: Occupational Hazards	Courses for Auxiliaries	March 4, 1989	Lecture	Four Speakers Four Topics	Open	\$50	Assistants Hygienists Allied Dental Personnel	(As above)
University of Manitoba Faculty of Dentistry 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	The Peri- odontal Diseases — Part I Direction of the Next Decade of Treatment	Periodontics	March 10, 1989	Lecture	Eric Freeman, DDS, Dip. Perio., MScD.	Open	\$115 DDS \$50 Aux.	GPs Specialists Assistants Hygienists	(As above)
(As above)	Winnipeg	Periodontics: Case Evalua- tion and Management — Part II	Periodontics	March 11, 1989	Partici- pation	Manitoba Periodontal Society	Limited to 50	Parts I & II \$350	GPs Specialists	(As above)
University of Manitoba/Manitoba Hygienists' Association 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Periodontics and Instru- ment Sharpening	Dental Hygiene	April 19, 1989	Lecture Partici- pation	Dorie Schmidt, RDH	Limited to 15	\$35	Hygienists	(As above)
Continuing Education Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton	Enhance Your Personal Excellence	Human Relations Communi- cation	Jan. 27-28, 1989	Lecture Partici- pation	Ms. Joan Conklin	Open	TBA	GPs Specialists Assistants Hygienists Lab Tech- nicians	Dr. Steve Peterson Ms. Debbie Grant (403) 432-5023 (403) 432-8240
(As above)	Edmonton	Partici- patory Interpretive Radiology	Oral Radiology	Feb. 4, 1989	Lecture Partici- pation	Dr. Charles Baker	Open	TBA	GPs Specialists Assistants Hygienists	(As above)
(As above)	Edmonton	Periodontics in Dentistry	Periodontics	March 18, 1989	Lecture	Dr. Trevor Chin Quee	Open	TBA	GPs Specialists Assistants Hygienists	(As above)
(As above)	Edmonton	Sonics in Endodontics	Endodontics	April 8, 1989	Lecture Partici- pation	Dr. Ken Zakariasen Dr. Don Collinson	Open	TBA	GPs Specialists Assistants	(As above)
(As above)	Edmonton, Alta.	Root Planing Update	Dental Hygiene	May 4-6, 1989	Lecture Partici- pation	Ms. Barbara Zier, Ms. Janice Pimlott	Open	TBA	GPs Specialists Hygienists	(As above)
(As above)	Edmonton, Alta.	Clinical Head and Neck Gross Anatomy	Basic Sciences	May 12-13, 1989	Lecture Demon- stration Partici- pation	Dr. G.H. Sperber Dr. B. MacPherson	Open	TBA	GPs Specialists	(As above)
(As above)	Edmonton, Alta.	Conscious Sedation in Dental Practice	Anxiety and Pain Control	May 29- June 2, 1989	Lecture Demon- stration Partici- pation	Dr. B.K. Arora & Associates	Limited to 16	TBA	GPs Specialists	(As above)

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry Continuing Education University of British Columbia 105 - 2194 Health Sciences Mall, Vancouver, B.C. V6T 1W5	Vancouver	An Advanced Course in Clinical Hypnosis in Dentistry	Anxiety and Pain Control	Feb. 11, 1989	Lecture Demonstration Participation	Dr. Lee Pulos Dr. Lance M. Rucker	Limited to 60	\$125	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627
(As above)	Vernon, B.C.	Infection Control in the Dental Office	Infection Control	Feb. 25, 26, 1989	Lecture	Dr. Robert R. Runnells and Dr. Paul A. Wit	Limited Enrolment	TBA	GPs Specialists Hygienists Assistants	(As above)
(As above)	Vancouver	Creating Successful Ceramic Restorations	Restorative Dentistry	March 4, 1989	Lecture	Masahiro Kuwata	Open	\$110 DDS \$65 Aux. \$85 Technicians	GPs Specialists Hygienists Assistants Technicians	(As above)
(As above)	Vancouver	Restoration of the Comprehensively Involved Dentition: Proper Sequence in Therapy	Restorative Dentistry	March 11, 1989	Lecture	Dr. Ralph A. Yuodelis	Open	\$110 DDS \$65 Aux.	GPs Specialists Hygienists Assistants	(As above)
(As above)	Vancouver	The Core-Vent System in Clinical Dentistry	Dental Materials and Devices	March 18, 19, 1989	Lecture Demonstration Participation	Dr. Daniel R. Patrick, Dr. Jay R. Friedman	Limited Enrolment	TBA	GPs Specialists	(As above)
(As above)	Vancouver	An Introduction to direct Gold Restorations	Restorative Dentistry	April 1, 1989	Lecture Demonstration Participation	Dr. Gerald D. Stibbs	Limited to 8	TBA	GPs	(As above)
(As above)	Vancouver	Recent Advances in the Treatment of Traumatic Dental Injuries	Oral Rehabilitation	April 15, 1989	Lecture	Dr. J.O. Andreasen	Open	\$110 DDS \$65 Aux.	GPs Specialists Hygienists Assistants	(As above)

Down in the Mouth?

- ☐ Can't find an appropriate text?
- ☐ Gaps in your research?
- ☐ Unprepared for speeches and lectures?
- ☐ Patients with unusual conditions?
- ☐ Uncertain of a procedure?



Let the CDA Library Put the Smile Back on Your Face.

We can find information for you, at a minimal cost, on everything from appointments and scheduling to third molar extraction. Just call us or write to:

Library
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

1-800-267-6354 Western Canada and Area Code 709
1-800-267-6364 Eastern Canada Excluding Area Code 709

Janvier 1989

DIM	LUN	MAR	MER	JEU	VEN	SAM
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Vérifier assurances

1- RC - Relèvement des montants

2- RC prof. - Relèvement des montants

3- Vérifier niveaux de garantie

4- Appeler CDSPI

N'ATTENDEZ PAS!

La fin de l'année est le moment de faire le point et de préparer l'avenir. Le CDSPI voudrait vous rappeler que la revue et la mise à jour des assurances qui vous protègent, vous, votre famille et votre cabinet, sont un aspect essentiel de votre planification.

C'est le moment idéal pour passer vos garanties en revue. Plusieurs changements seront apportés au RADC le 1^{er} janvier. Vous voudrez peut-être profiter du relèvement des plafonds et saisir l'occasion de commencer l'année l'esprit tranquille en sachant que vous êtes convenablement protégé.

N'oubliez pas que le CDSPI vous propose un service d'analyse des contrats entièrement gratuit, qui vous permet de recevoir une analyse écrite de toute assurance ou projet d'assurance qui pourrait vous être soumis, pour vous aider à prendre votre décision en toute connaissance de cause.

Appelez le CDSPI dès aujourd'hui.



CDSPI

Pour de plus amples renseignements contacter le CDSPI, sans frais, et un agent d'information se fera un plaisir de vous aider.

1.800.268.54.18 Provinces de l'Ouest, provinces atlantiques et région de l'Ontario avec l'indicatif régional 807

1.800.268.34.11 Québec et Ontario, **sauf** pour la région avec l'indicatif régional 807
497.71.17 Toronto et environs

Le texte ci-dessus a été approuvé par nos consultants/courtiers et nos assureurs.

Specialty Features

SHARING OUR HEALING SKILLS

Editor's Note: This edition of the Journal will be reaching our readers at about the peak of the Festive Season. Whatever our faith, wherever we are in our bountiful land, it is difficult to escape the sounds of joy, of goodwill and peace on earth. As we look forward to a New Year there is the eternal hope of health and prosperity. But to many millions of people throughout the world there is little for which to be joyous; all too often there is hunger and fear; there is pain and suffering. Within this issue the story is told of Canadian dentists who have taken their healing skills far from our shores. Those who are singled out are not the only ones to have travelled in foreign lands (it would take volumes to recognize them all), but they exemplify the spirit that makes life worthwhile; service above self.

• PART ONE •

Canadians pioneering dentistry in China

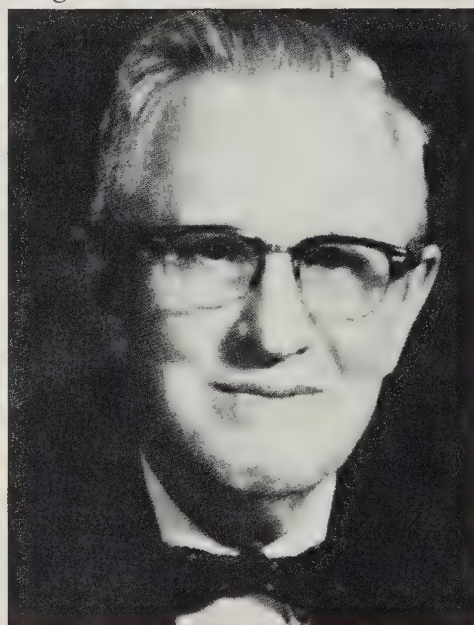
P. Ralph Crawford, DMD

In 1907 a University of Toronto fourth year dental student had a dream. His name was Ashley Woodward Lindsay, the son of devout Christian parents, active supporters of the Methodist Church Missions in China. While his classmates were probably thinking of setting up practices in the bustling city of Toronto, young Ashley dreamt of taking his newly learned dental skills into far-off lands where the pain and suffering of his fellow men might be eased.

Immediately upon graduation with his new DDS degree in the spring of 1907, Dr. Lindsay in preparation for his dream, entered a six month general anaesthesia course at Toronto's Western Hospital. He was one of the first dentists in Canada to embark on an internship and post-graduate study in any hospital. On November 17, 1907, with the support of the Board of Missions of the Methodist Church of Canada, he arrived on China's shores. He was to become the world's first dental missionary.

Dr. Lindsay's destination was the Church's mission hospital in the city of Chengtu, the capital of Szechuan province within the heart of West China. He

was to be the only trained dentist for a vast region of 100,000,000 people. Situated 2,000 miles inland, where roads and railroads did not exist; travel along the Yangtse river on small river steamers,



Ashley W. Lindsay, DDS, MSc, (Dent), LLD, FACD. 1884-1968. The first dental missionary to China, 1907. Founding Dean, West China Union University.

and through mountain passes on foot, took weeks.

Up to the time of Dr. Lindsay's arrival there was no teaching of dentistry in China. There were a few foreign (English) dentists, located mainly in Shanghai. They catered to the monied classes and the small European community. They employed Chinese lads as apprentices and many of these pseudo-dentists eventually went into practice themselves. Even these inexperienced apprentices provided more sophisticated dentistry than was previously available.

It was not unusual to witness Chinese women "worm-removers" claiming to eliminate pain by the removal of worms from the attentive audience, displaying neat sleight-of-hand, the crone would present her suffering patient with the worms ostensibly taken from the painful tooth—always at a pre-arranged fee. Old style "tooth-removers" could also be seen plying their trade in busy public thoroughfares.

First dental operatory

On arrival in Chengtu, Dr. Lindsay became associated with the tiny mission

SHARING OUR HEALING SKILLS



T.C. Whang, BDS (WCUU), DDS (Tor): First dental graduate of West China Union University and first Chinese graduate to be awarded a Dental Degree from the University of Toronto, in 1927.

hospital. The first dental operatory was built at the end of his veranda. In 1909 Lindsay was joined by Dr. John Thompson, a 1908 Toronto Faculty of Dentistry graduate. Dr. Thompson actually went to China as a YMCA worker but decided to stay to assist Lindsay to establish a proper dental facility.

Dr. Thompson reported, "I worked for patients who had travelled twenty-four days, and if I had not been here they might have had to go to Shanghai, another twenty-four days away. Even to serve our own missionaries, some of them must travel fourteen days to receive dental attention."

In 1910 the West China Union University was founded in Chengtu. The University was both international and inter-denominational, governed by five co-operating Mission Boards representing Great Britain, United States and Canada. By 1911 a Dental Clinic was established in the hospital. It was to be the first in all China. Dr. Lindsay served as the Chief of Dental Studies and Dental Treatment Services. In 1913 the first laboratory technicians' training class was organized.

A milestone was achieved in 1911 when the Medical Faculty of the West China University established a Department of Dentistry. By 1921 that department became the College of Dentistry. In 1927 the Colleges of Medicine and Dentistry united to form the joint College of Medicine and Dentistry. A quote from the

1919 Dominion Dental Journal states, "a dental course of six years (would) be established in connection with the Medical School, three years of which shall correspond with three years of the medical course and three years in dental subjects, technique, and training".

Joining Drs. Lindsay and Thompson during the pioneering period of the Dental College were other University of Toronto graduates; Dr. Harrison J. Mullet in 1917, Dr. M.R. Anderson in 1919 and Dr. R. Gordon Agnew in 1923. Mullet was to supervise prosthodontics while Agnew who had studied under Gottlieb, the Viennese world caries authority of the day, taught periodontics and histopathology.

First dental graduate

The first graduate of the Dental School at Chengtu was Dr. T.C. Whang who showed great promise. Through the efforts of Drs. Lindsay and Thompson who raised funds back in Canada, Dr. Whang attended the University of Toronto and after two years received a DDS degree in 1927. He returned to Chengtu to join his Faculty. A very interesting account of the adversities encountered in dental education is found in an early communication by Dr. Thompson. "Great difficulty was experienced in getting heads to dissect. Dr. Whang went out one night and got the head of a robber who had been beheaded on the corner of the street next to the hospital. It would have been very unwise for a Canadian to have done that".

Tragically, in 1932 Dr. John Thompson

died of oral cancer. His death was widely mourned in Chengtu. They had lost not only a dedicated Christian dentist, but a large void was created in the dental teaching staff. Fortunately, the faith that created and sustained the mission in its very early days continued to attract others endowed with kindred spirit.

Shortly after Dr. Thompson's death, Dr. Lindsay was on furlough and was lecturing across Canada about the dental needs in China. In his Thunder Bay audience was a young 1931 University of Minnesota dental graduate, Dr. W. Gordon Campbell.

Campbell, the son of a Winnipeg physician, had already heard about China's missions, and met with Winnipeg people associated with them. He was touched by Dr. Lindsay's appeal. An excerpt from the Journal of the Canadian Dental Association, September 1936, tells the story. . .

"Dr. W. Gordon Campbell, University of Minnesota graduate of 1931, and in practice in Winnipeg since 1932, decided to join the ranks of the benedicts and also to accept a lectureship on the staff of Western China Union University.

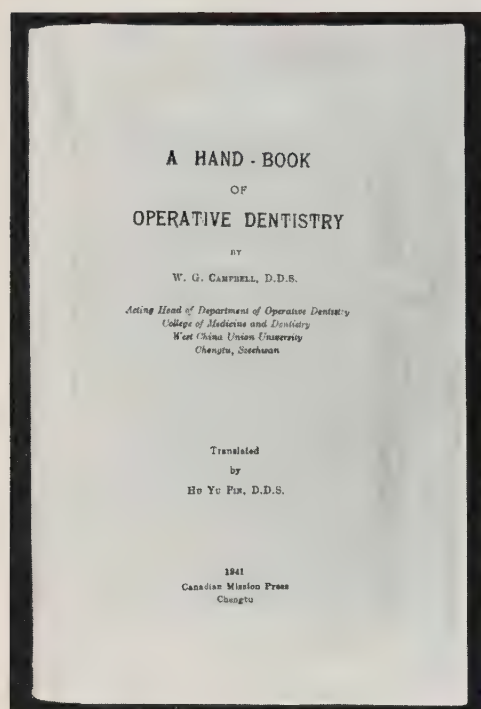
Dr. and Mrs. Campbell left Winnipeg on August 17th (1936) for Vancouver from whence they sail on their new venture."

Wrote first textbook

In 1941 Dr. Campbell wrote the first dental textbook ever published in China, "A Hand-Book of Operative Dentistry". Printed on bamboo paper, it has Chinese script on one side and English on the



A rare photo of the dental graduating class, West China Union University, 1940. Front row, left to right, Dr. W. Gordon Campbell (Winnipeg), Dr. J.L. Wong (Minnesota), Mrs. Bea Mullet, Dr. Harrison Mullet (Toronto), Dr. Ashley W. Lindsay (Toronto), Alice Lindsay, Mrs. Gordon Agnew, Dr. Gordon Agnew (Toronto). Back row: seven proud graduates.



"Hand-Book of Operative Dentistry", author — Dr. W. Gordon Campbell: The first textbook ever written for Chinese dental students, West China Union University, 1941.



1941 "Hand-Book of Operative Dentistry" by Dr. W. Gordon Campbell. Left side Chinese, right side English. Page 21, first paragraph, indicates the caries protection from fluorine.

other. How prophetic was young Campbell in that text. On page twenty-one, written almost half a century ago and half a world away from "home base", he predicted the means that was to change the face of dentistry around the world.

"oddly enough the investigation of mottled enamel caused from an excess of fluorine in the drinking water found that caries was less where fluorine was present".

The Campbells are retired in Winnipeg today and humbly relate the many adventures and problems encountered while teaching dentistry thousands of miles away from proper supplies and equipment. Virtually everything had to be imported; and electrical equipment was the hardest to procure and maintain. Simple items such as engine belts, burs, glass microscope slips, all taken for granted in the Western World, posed many supply problems in China. Bartering was often a way of life. Ingenious Chinese iron-mongers were pressed into service for

heavier equipment repairs and even duplication of an entire machine, such as an entire S.S. White foot-pedal dental engine.

Chinese students all learned some English before entrance exams to university. However, most often during the "one-to-one" demonstrations, the instructors were required to converse in Chinese. Things as simple as time posed problems in those early days. The Chinese didn't follow the Western 24-hour clock and it took patience and understanding to teach the Western method of utilizing an appointment book.

When Japanese hostilities began to close in upon them in the early 1940s the Campbells felt their personal safety was in peril. They had lost their only son to dysentery and Mrs. Campbell was then pregnant following several miscarriages. They decided to return to Canada. Following a harrowing flight over the Burma "hump" at 20,000 feet without oxygen, they then had to wait in India for two months before boarding a troop transport bound for San Francisco. Because the transport had to call into ports in Australia and New Zealand it was another seven weeks before they arrived in Canada.

Dr. Campbell was registrar-secretary-treasurer of the Manitoba Dental Association for ten years, retiring in 1968. He was on the first clinical staff in the Department of Dentistry for Children when the new University of Manitoba Faculty of Dentistry Clinic opened in 1960.

Dr. Lindsay in the meantime was constantly at work during his long tenure in China. He held the position of Hospital Superintendent for ten years, was Dean of Dentistry from 1921 to 1950, and served as Vice-Chancellor of the University from 1946 to 1950.

Dr. Lindsay's furloughs to Canada were periods of intensive academic study and research. In 1929 he earned a BSc (Dent) degree from the Toronto Faculty for his thesis on the "Direct Approach Mandibular Block". He may not have been the first to advocate the direct approach technique but he was the first to systematically dissect and portray the retro-molar anatomy in clear and readily understood line drawings. An MSc (Dent) was acquired in 1936 from Toronto, and in 1945 the same University conferred the Honorary LLD degree.

Political strife and unrest seemed to be

SHARING OUR HEALING SKILLS

the fate of China's millions for years on end. In the modern era, the Sino-Japanese war erupted in 1931, and Japan occupied Manchuria. By 1940 the Japanese had swept over the entire east coastal area. The west, protected by a natural barrier of mountains, remained "Free China" where Chiang Kai-Shek set up a temporary capital in Chungking. Following Japan's defeat in 1945, China regained sovereignty over all areas, except Macao and Hong Kong, but in 1946 the Communist-Kuomintang civil war flared anew. By September of 1949, the Communists proclaimed rule over all of China and established the Chinese People's Republic. Mao Tse-tung became chairman; Chou En-lai was premier. The cultural revolution was to begin. Chiang Kai-Shek fled to Taiwan where he established the Nationalist government.

Political strife

Dr. Lindsay (and the United States!) had supported the Kuomintang and Chiang

Kai-Shek against the Communists. In fact in 1942, Lindsay was awarded the Chinese Ministry of Education's First Class Certificate of Honour and the Chinese National Government's Cravat of the Order of the Brilliant Star. During the cultural revolution all higher education was downplayed, the Dental Faculty was closed and Dr. Lindsay and his staff were proclaimed "persona non grata". Dr. Lindsay left China for the last time in 1950.

At a time when most men would have considered their obligations to life and dentistry were over, Dr. Ashley Lindsay accepted the editorship of the Ontario Dental Journal and never missed a deadline for more than 15 years. In recognition of his lifetime of devoted service, the Ontario Dental Association honored him with a Life Membership in 1968. Shortly thereafter, on December 9, 1968, Dr. Ashley Woodward Lindsay died at the age of eighty-four. An editorial of the day commented on his amazing contribu-

tions, "Well Done Good and Faithful Servant".

What of the West China Union University today? Dr. and Mrs. Campbell in commemoration of the University's 75th anniversary of founding, travelled to Chengtu in 1985. No Burma "hump" this time. Now it was by modern jet aircraft. There they met with many of their former students and four of the staff members with whom they had served. The ex-students are reluctant to talk about what transpired during the cultural revolution when all higher education was suppressed. Most seemed intent to get on with the job of today and the plans of tomorrow. The University has made a remarkable comeback and is now part of a centralized Health Sciences Complex that serves all Western China.

Despite whatever changes have occurred and will occur in the future, Canadian Dentistry can always be proud of the magnificent role it played in taking their profession to lands afar. Δ

Dentist

\$51,600 – \$63,900 (Contract)
\$46,900 – \$58,100 (Classified)
(under review)

The MINISTRY OF HEALTH, Lakehead Psychiatric Hospital, offers an opportunity to practise dentistry in a pleasant atmosphere. This prevention-oriented practice includes two modern operatories, including fiber optics, an experienced dental hygienist and dental assistant, and is equipped to provide full services to psychiatric and developmentally handicapped clients. Excellent fringe benefits. The ministry has a smoke-free workplace policy. **Location: Thunder Bay.**

Qualifications: Licence to practise dentistry in Ontario; acceptable experience; good organizational, administrative, communication and interpersonal skills; knowledge of safety practices.

Please submit application/resume, quoting file HL-24-13/88, as soon as possible to: Dr. J.B. Frost, Medical Director, Lakehead Psychiatric Hospital, 580 North Algoma Street, P.O. Box 2930, Thunder Bay, Ontario, P7B 5G4. Tel: (807) 344-3571.

Equality of Opportunity for Employment



**Ontario
Public Service**

Dentiste

46 900 \$ – 58 100 \$ (classifié)
51 600 \$ – 63 900 \$ (contrat)
(sous révision)

Le MINISTÈRE DE LA SANTÉ propose, à son hôpital psychiatrique de Lakehead, un poste de dentiste, dans une atmosphère de travail agréable. Vous devrez: exercer une médecine dentaire orientée sur la prévention, dans un cabinet doté de deux installations modernes (équipé d'instruments à fibres optiques), en collaboration avec un assistant hygiéniste dentaire expérimenté; dispenser des services complets à des patients atteints de maladies mentales et de troubles du développement. Milieu de travail sans fumée. Excellents compléments sociaux. **Lieu de travail: Thunder Bay.**

Exigences: Permis d'exercer la dentisterie en Ontario; expérience acceptable; sens de l'organisation et talents d'administrateur; bonnes aptitudes à la communication et aux relations interpersonnelles; connaissance des techniques de sécurité.

Prière d'envoyer votre demande/curriculum vitae, dans les meilleurs délais, à: Dossier HL-24-13/88, Docteur J.B. Frost, Directeur médical, Hôpital psychiatrique de Lakehead, 580, rue Algoma nord, C.P. 2930, Thunder Bay (Ontario) P7B 5G4. Téléphone (807) 344-3571.

Chances d'embauche égales pour tous



**Fonction publique
de l'Ontario**

• PART TWO •

Canadians in Third World countries A Caribbean experience

*Robert Clark, BSc, DDS
(as recounted to the journal editor)*

To find what Canadian dentists are contributing during the 1980s to the less fortunate Third World areas, the Journal contacted Toronto dentist, Dr. Bob Clark, a University of Toronto 1978 graduate.

Dr. Clark is currently president of EMAS — the Evangelical Medical Aid Society — a sister organization of the Canadian Christian Medical Dental Society. EMAS began in the post-WWII days when a small dedicated group of Canadian physicians, a dentist, along with a drug salesman, noted a severe need for medical drugs, supplies and treatment in foreign lands. From this nucleus grew a teaching/treatment mission that has touched the lives of millions of people.

Dr. Clark's own involvement began as a fourth year dental student, when he and 10 classmates had an opportunity to go to a remote Caribbean area for short-term dental service. It was to be an experience that changed his life.

Dr. Clark explained that EMAS is an interdenominational organization. Probably there are 10 or 15 sub-denominations within the group. They invite dentists of all faiths to contribute short periods of practice time serving the less fortunate in far-away lands. Asked if one had to be "religious" or of one particular creed, Dr. Clark replied, "No, but those participating must certainly be sympathetic with our goals. Our goal is to provide a Christian outreach. And our mission is to bring 'a drink of cold water to thirsty people'."

EMAS involves about 250 Canadians in the course of a year. Not all dentists. The usual makeup of volunteers would be one-third physicians and dentists, one-third nurses, and one-third assistants and technicians. The dentists come from all parts of Canada and the usual commitment is two weeks a year. The joint Cana-



Indoor dental treatment is provided in a dental clinic in a hospital.

dian and USA projects incorporate about 30 missions a year in Africa, the Caribbean, Latin America, and the Philippines. After a period of almost 40 years without medical/dental support from North American professionals, our group is "thinking" of China.

Canadians, because of proximity, usually serve in the Caribbean and in Latin America. EMAS finds its services are required more in the remote areas, back in the bush, where proper medical/treatment is virtually non-existent. Caribbean and neighboring areas such as Honduras, Guatemala and the Dominican Republic have dental schools but dentists in these countries are no different than in North America. They tend to congregate and set up practices in larger centres.

Dr. Clark's personal experience has

been mainly in the Dominican Republic. The villages the dentists visit are usually lacking the modern facilities we take for granted. Transportation is whatever the dental team can find at the time. It could be a bus or jeep, or perhaps hitching a ride of some sort with a missionary or a Peace Corps worker.

When asked about the type of treatment provided, Dr. Clark explained, "We just fly by the seat of our pants — not knowing what we are going to do until we get there". Much of the treatment is palliative, mostly extractions. Many of the remote areas lack electrical power and even portable dental equipment is a rarity. The dental team finds itself doing "just what it can" to relieve suffering and pain. A patient may have walked eight to ten miles to visit the dentist.

SHARING OUR HEALING SKILLS

People 'really appreciative'

Normally a prior announcement is made that the dental team is expected. Posters may have been spread by the missionaries. Radio announcements are broadcast, but usually the word of mouth system attracts from far and wide. Dr. Clark said, "the people are really appreciative. We are the star attraction in the village. Everyone comes to see us. After their own treatment they hang around and watch the others".

EMAS dental teams soon learn that it is best to bring your own materials. They never know what is available on site. Dr. Clark explained that he took a "kit" with him; some favorite forceps, gauze, cotton rolls, medicaments, needles etc. Cold sterilization is almost always the only choice available. Different countries may have a warehouse or supply depot containing some supplies and equipment but the dentist never knows until arrival on the scene. "Generally, you just operate out of a suitcase", said Clark.

Communication is always a problem. If a dentist speaks either French or Spanish it is a great advantage. Very often interpreters are provided by church missionaries or Peace Corps personnel. Again, it is a case of just doing one's best under the prevailing circumstances.

Prevention is paramount

As with all dental treatment, prevention is paramount but not always possible. If there are schools in the area an invitation is extended to the dental team to demonstrate preventive methods. But simple things such as brushes, toothpaste and fluoride are expensive or not available.

The political strife in some of the Caribbean areas does not appear to pose problems. It was explained that EMAS just doesn't take sides in politics. EMAS works for the benefit of the people, their task is to heal! They only go where and when invited.

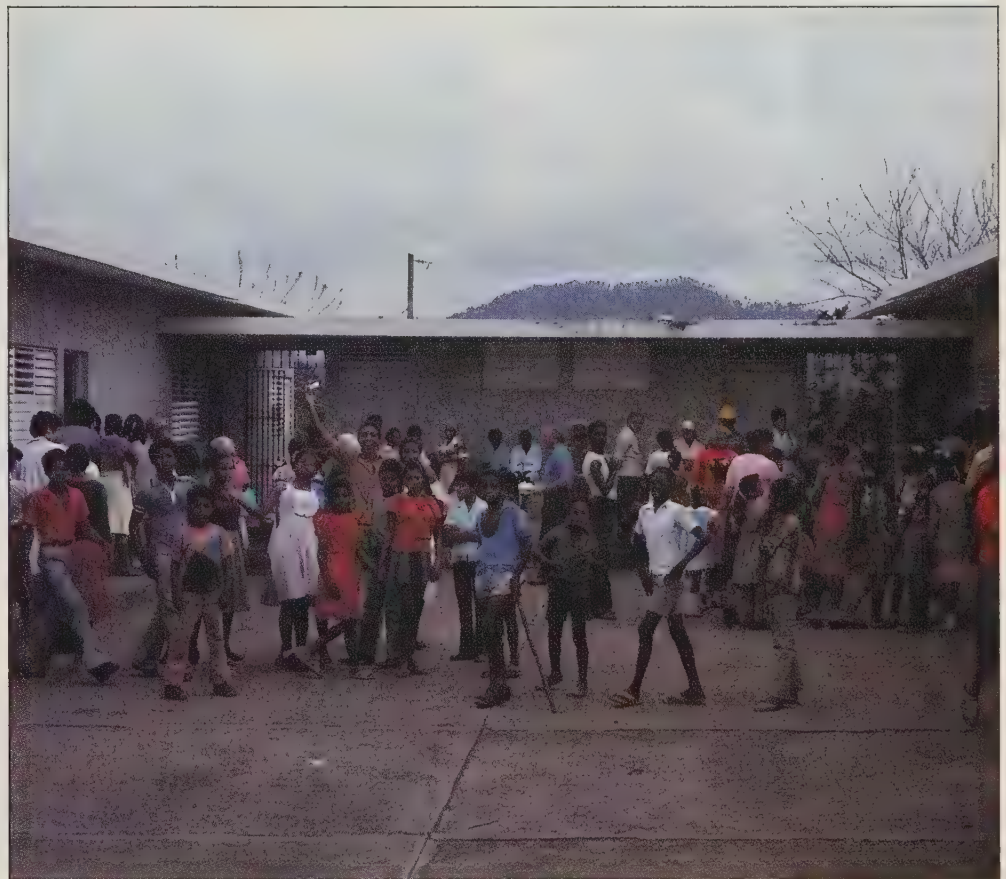
When speaking to Dr. Clark, the impression is that the short-term EMAS experience is no vacation. All dentists and team workers are volunteers. They pay their own air fare to whatever country they may be serving and they must put up a \$450 fee to cover accommodation, meals and transportation while there.

When asked, "Why then do you do it?", Dr. Clark replied, "I'm helping other people. It's a thrill of a lifetime".

What better reason! △



Dental procedures being carried out outdoors is a common experience. This usually draws a crowd of curious onlookers.



A long lineup of patients await their turn for their dental checkup or treatment.

• PART THREE •

A Canadian experience in Ethiopia

H.A. Pankratz, BA, DMD

In the spring of 1983, having just convinced an associate to join my William's Lake practice in central British Columbia, my wife and I applied to several missions and government agencies offering our dental services to needy countries. From SIM (Sudan Interior Mission) came an enthusiastic acceptance. The term of service would be nine months which represented their present dentists' furlough time.

We spent most of that summer getting all our documents in order; departure was scheduled for November 1983. Following three days of orientation in Toronto we left for Addis Ababa. Our first task was assembling supplies and equipment. My wife Wilhelmina would serve as a receptionist and we hired and trained a local high school graduate to be our chairside assistant.

The need we came to fill in Ethiopia was fairly well defined. We were to maintain the dental health of the expatriate missionaries from all the Christian Missions within Ethiopia, and to provide emergency dental care for the Ethiopian nationals working in the missions.

The missionaries came from almost every developed country in the Western World. Most were serving terms of three to five years. They were teachers and preachers, physicians and nurses; veterinarians, horticulturists, secretaries and linguists. All with a common objective; to bring aid and hope to the suffering and underprivileged.

The almost 500 missionaries greatly appreciate the availability of dental services. Without a dentist on site they would have to await treatment until their next furlough which could be as long as five years. We provided prophylaxis, scaling and topical fluoride, along with routine dental care. The children of the missionaries were particularly enthusiastic of the preventive dental health care. Dental supplies were donated by Canadian supply houses; Premier Dental, Astra and Cooke-Waite were particularly generous.



Clinic operatory at SIM Headquarters in Addis Ababa. At left is an Ethiopian chairside assistant, Mulu. The happy patient is Aster and the receptionist, right, is Mrs. Wilhelmina Pankratz.



Dr. Hank and Wilhelmina Pankratz are pictured in the Addis Ababa dental office.

Technicians serve as "dentists"

Dental care in Ethiopia is not controlled by the government. Many inadequately trained technicians become "dentists". Much of the care available is sub-standard and infection control guidelines are not always a priority. Some Cuban and Russian trained dentists are on staff in hospitals but their services are basically reserved for the armed forces personnel.

The demand for our dental services kept us busy five and a half days a week but we still found time to participate in the routine operations of the guest house and office buildings. We soon learned that everyone willingly pitched-in to help everyone else in whatever manner they could. These cooperative efforts contributed to very lasting and friendly relationships.

Although the main routine of our work

SHARING OUR HEALING SKILLS



At the mission station in "Down Country", the resident nurse is shown giving a dental examination to an Ethiopian woman.



The young Bunna tribe girl at the left exhibits a Noma lesion. She has received infection control treatment.

in Ethiopia was the provision of dental care to European and North American patients we were involved with a variety of dental experiences over the nineteen months of service between 1984 and 1988. A hands-on training program was developed for the nursing staff who provided services in the remote SIM missions "down country". With just three or four sessions during a week's program these nurses were taught basic dental anatomy, local anesthetic procedures and extraction techniques. They returned to their remote stations "ready" to practice dentistry! Such methods would never be tolerated in Canada but it is difficult to imagine the conditions and decisions faced by these nurses every single day.

We have had occasions to provide refresher courses at nursing stations among some of the most primitive tribes in South Ethiopia. Transportation, first in Twin Otter, was followed by hours of travel in four-wheel drive vehicles. The countryside, although very arid, was densely populated. The people appeared friendly but we were a bit disconcerted to note that all were armed with a variety of weapons ranging from spears, knives, bows and arrows to old rifles.

Anxious to see 'tooth doctor'

The day after our arrival at one particular nursing station, the clinic was crowded with those wanting to see the "tooth doc-

tor". Surprisingly, their dental health was generally good. The most common pathology was dental abscesses due to trauma. Many of the tooth injuries in fact were mutilations from the age-old practice of enhancing beauty.

Through an interpreter we were able to provide oral hygiene instructions in the local school. An opportunity to examine thirty-six of the school children between eight and eighteen indicated that although there was a low caries index, each had suffered some type of dental injury.

By the spring and summer of 1984 the mission stations in the country areas were becoming aware of the desperate plight of tribal groups who had suffered successive crop failures from severe drought. The Christian missions, including Canadians, responded quickly by recruiting medical and logistics personnel from their home countries to distribute food and medicines.

We were able to offer whatever services we could at the emergency feeding stations and food distribution centres. Medical aid was available but the provision of dental care was greatly appreciated. All dental emergencies presented in these stations were exacerbated by malnutrition. Antibiotics were used very effectively but periodontal disease made extractions necessary in almost all cases. Patients were always amazed that this could be done without pain!

Malnutrition and stress

One distressing and fairly common condition found in Ethiopia is 'Noma', an acute rapidly invasive necrotizing infection of facial soft tissue and bone. It originates as a specific infection of the Vincents organism and then progresses to gangrenous stomatitis with the super infection of staphylococci, streptococci and diphtheria bacilli. The underlying condition is commonly malnutrition and "stressful living conditions".

When medical attention is available the condition responds rapidly to antibiotic therapy and adequate nutrition. Gross defects of bone, skin and connective tissue of the maxilla are fairly common, especially in the city after patients have received treatment. A team of plastic surgeons from the Netherlands is operating a program to restore the facial deformities.

Gratitude akin to worship

The 'Noma' patients almost always require special dental considerations. Dental treatment is extremely difficult. The oral orifices have been rendered so immobile that access is at times nearly impossible. Whatever care is rendered the gratitude expressed by long-suffering patients is embarrassingly akin to worship. It's what makes our efforts worthwhile! △

(Dr. Pankratz is a 1967 graduate of the Faculty of Dentistry, University of Manitoba. He has conducted a private practice in Williams Lake, B.C. since 1972.)

ANTI-PLAQUE **Viadent**[®]

Control and protection
where it counts.



Sanguinarine: A unique anti-plaque ingredient.

Sanguinarine helps to inhibit the growth of plaque microorganisms shown to be related to periodontal disease and caries, while not affecting the bacteria normally associated with healthy tissues.¹

1.Dzink, J.L., and Socransky, S.S. Comparative in vitro activity of sanguinarine against oral microbial isolates. Antimicrobial agents and chemotherapy. 27:663-665, 1985.

Extensive research demonstrates efficacy against plaque and gingivitis.

Sanguinarine has been tested against plaque and gingivitis in well controlled studies* conducted at major universities and research centres around the world.

In over 25 published articles and abstracts, Viadent was shown to be most effective in plaque control and prevention of gingivitis.

*Available upon request

- > Clinically shown antimicrobial activity that lasts up to 2 hours.
- > Clinically shown to inhibit plaque formation.
- > Clinically shown to reduce and prevent gingivitis.



For prescribing information, see page 930

**Recommend Anti-plaque Viadent.
Your patients will feel the difference.**



Frank W. Horner Inc.
Dental Products Division.
5485 rue ferrier
montréal québec
H4P 1M6

PAAB
CCPP

Clinically Speaking:

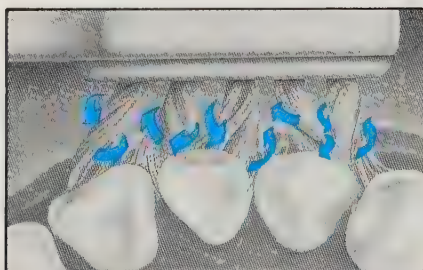
INTERPLAK® Proven Superior to Hand Brushing in Subgingival and Interproximal Cleaning

The purpose of this study was to examine the effectiveness of the INTERPLAK® Instrument in removing subgingival and interproximal plaque. Furthermore, the efficacy of INTERPLAK® was compared to that of manual brushing using the modified Bass Technique.

Following is an edited excerpt from a clinical study published in the Compendium of Continuing Education in Dentistry, Supplement No. 6, 1985. The study was performed by Jeremy J. Youngblood, DDS, William J. Killoy, DDS, MS, John W. Love, DDS, Connie Drisko, DDS, University of Missouri, Kansas City.

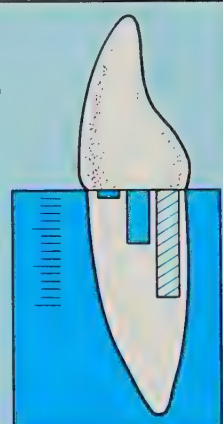
METHODOLOGY:

Twenty-five teeth were manually brushed, twenty-five teeth were brushed using INTERPLAK®, and five teeth were untreated controls. The height of the free gingival margin was grooved, and the teeth were extracted without subgingival instrumentation. After the teeth were extracted, plaque was disclosed by staining the teeth with 0.125% toluidine blue. The depth of plaque removal was evaluated for the percent of plaque-free surface from line angle to line angle and from CEJ to proximal-occlusal line angle.



Mean Depth of Plaque Removal

☐ Control	0.10 ± 0.13
☐ Manual	0.70 ± 0.44
☒ INTERPLAK®	1.40 ± 0.66



RESULTS:

The control group consistently had plaque at or near the gingival margin. The average depth of cleansing was 0.70 ± 0.44 mm for the manual brush and 1.40 ± 0.66 mm for the INTERPLAK® Instrument. The interproximal cleansing results for the manual group showed an average plaque-free value of $25.7\% \pm 6.8\%$. The average extent of plaque removal for the INTERPLAK® users was $42.4\% \pm 11.2\%$. The difference was statistically significant ($p < 0.001$) and the results indicate that the INTERPLAK® Home Plaque Removal Instrument is superior to the manual brush in both subgingival and interproximal cleaning.

FOR MORE INFORMATION...

This is one of eight clinical studies completed to date regarding the safety and efficacy of INTERPLAK®. For a complete copy of the published results call 1-800-387-0123. In Toronto call 416-447-4971.

INTERPLAK®
HOME PLAQUE REMOVAL INSTRUMENT



NOW WITH INTERCHANGEABLE
BRUSH HEADS!

Somerset House

© Dental Research Corporation 1987

74 Gervais Drive, Don Mills, Ontario M3C 1Z3

The INTERPLAK® oral hygiene device is acceptable as an effective cleaning device for use as part of a program for good oral hygiene to supplement the regular professional care required for oral health.

Council on Dental Materials,
Instruments and Equipment
American Dental Association

Specialty Features

Some characteristics of glass ionomer CEMENT LINING MATERIALS

Dennis C. Smith, MSc, PhD, DSc, FRSC(C)

Dorin N. Ruse, MSc, PhD

Dennis Zuccolin, BSc

Department of Biomaterials

Faculty of Dentistry

University of Toronto

ABSTRACT

pH change on setting, bond strengths in tension and shear to bovine dentin and to two light-cured composite resin systems and radiopacity were determined for three glass ionomer cement lining materials. Initial acidity of two of the cements was greater than for the other but subsequent changes were similar and appeared unlikely to contribute to pulpal sensitivity. Bond strength to dentin was higher in shear than tension, in the range 1-4MPa. Bond strengths of the composite resin systems to the cements varied with the material combination and etch procedure. One material gave comparable values with or without etching of the cement. The best values (5-6 MPa) appeared to approach the cohesive strength of the cement. These bond strengths seem adequate for clinical service when proper placement techniques are utilized. The radiopacity measurements showed that all the cements were more radiopaque than dentin and one material more than enamel.

Key words: glass ionomer cement, cavity lining

Dr. D.C. Smith

Faculty of Dentistry

University of Toronto

124 Edward Street

Toronto, Ontario CANADA M5G 1G6

Introduction

The use of composite resin materials for the restoration of posterior teeth has introduced significant problems into clinical practice.^{1,2} Controversy exists not only in relation to the wear resistance and durability characteristics of the materials themselves, but also in

relation to the adequacy of bonding to the enamel and dentin in the light of their polymerization, shrinkage and water sorption characteristics.³

Sensitivity of the tooth after placement of composites has been attributed to several factors including (a) mechanical effects (b) hydrodynamic effects and (c) marginal leakage and penetration of bacteria to the dentin interface. All these factors may involve the bonding, or lack of it, to the enamel and, particularly, the dentin interface. Adhesion to dentin is more difficult to achieve and, numerically, considerably lower than that achieved to enamel by the acid etch technique. Thus, the dentin bond is structurally less durable than the enamel bond.

A number of dentin bonding agents based on reactive monomer systems have been introduced⁴ and these may offer some potential for minimising leakage but, in general, these materials are of low stiffness and are not anticariogenic. The glass ionomer cements (GIC) offer a combination of similar, or better, adhesion to dentin than the polymerizable systems, adequate bulk and stiffness and leachable fluoride which make them superior as materials for lining or basing cavities in which composite restorative materials will be placed.⁵ It has been reported that the use of glass ionomer lining cements has substantially reduced the incidence of pulpal sensitivity arising from composite restorations.⁶

As with most cements, the properties of glass ionomer cements vary with composition and manipulation including variance in powder-liquid ratio. Factors such as fluidity, setting rate, pH change and mechanical state may affect bonding and tissue response. Thus, the comparative performance of different brands of these materials, used as lining cements, may

vary both intrinsically and as a consequence of technique sensitivity.

In the present study, characteristics of three glass ionomer cements, important to clinical performance, were evaluated and compared as lining materials. A new material was compared to two materials that have been widely used and reported to perform satisfactorily.^{6,7}

Materials and Methods

Three glass ionomer cements were tested (a) Ketac Cem., Espe GmbH, Germany; (b) G.C. Lining Cement, G.C. Dental Co., Japan; (c) 3M Glass Ionomer Liner, 3M Co., Minnesota, USA. The cements were proportioned and manipulated according to the respective manufacturers' directions.

Bond strength in tension and shear to bovine dentin was determined as follows: freshly extracted bovine teeth that had been stored in water at 5°C were ground to a plate-like shape (5 × 10 × 25 mm) on 180 grit SiC paper using a rotating wheel and copious water coolant. The labial surface of the tooth was then ground similarly finishing with 600 grit paper to expose a flat dentin surface just below the enamel junction. The specimen surfaces were rinsed with distilled water and dried in a gentle stream of air. A prepared tooth was loaded into a mounting jig and the glass ionomer cement placed into a silicone elastomer cylindrical mould in contact with the exposed dentin surface. For the tensile specimens, a small eyelet screw was vertically positioned in the unset cement and maintained until the cement hardened. Six specimens were prepared for each variable tested. After the appropriate setting time, the samples were removed from the jig and stored in distilled water for 1, 7 or 30 days respectively until testing. For testing, the bonded assembly was transferred to a

TABLE I

Materials

Material	Manufacturer	Batch No.	P/L Ratio (w/w)
GC Lining	GC Dental Corp Japan	060261 080461 120661 150461 280561 290361	1.2/1
Ketac Bond	ESPE GmbH Germany	N023 N055 N189 N198 N202 N205	3.4/1
3M Lining	3M Co., USA	Exl 110 Batch 1 Exl 110A	1.4/1
P-30 + Scotch Bond	3M Co., USA	6R1 6N4	
Silux + Scotch Bond	3M Co., USA	6G 6R	

TABLE II

pH changes in glass ionomer lining cements

Time (min)	GC	Cement pH Ketac	3M
0	1.80	1.75	2.30
1	1.95	1.90	2.35
2	2.50	2.30	2.40
3	3.05	3.00	2.85
4	3.35	3.20	3.10
5	3.50	3.35	3.35
10	3.85	4.20	3.90
15	4.30	4.50	4.30
20	4.45	4.52	4.45
30	4.80	4.70	4.75
45	5.05	5.00	4.95
60	5.50	5.05	5.00
120	6.20	5.20	5.25
180	6.35	5.15	5.40
240	6.60	5.30	5.50
300		5.35	5.60
1440	7.00	5.90	6.00

holding jig in an Instron Universal Testing Machine. The GIC specimens were either pulled vertically from the surface for tension tests or sheared off by means of knife edge, in each case using a cross-head speed of 0.5 cm/min. Failure mode as cohesive or adhesive was assessed by low power visual examination.

Bond strength tests for attachment of the GICs to two light-cured composite restorative materials P-30 and Silux were carried out similarly. The GICs were moulded into plates 20 × 20 × 3 mm. After setting, the flat surface of the plates was either used directly for bonding the composite or etched for 20 seconds using Scotchbond™ phosphoric acid etching gel, rinsed copiously with distilled water and dried with a gentle stream of air. The prepared plates were loaded into a mounting jig and the surfaces coated with

a thin layer of light-cured Scotchbond™, manipulated according to the manufacturer's directions, and cured by 10 seconds exposure to a Coe-Lite™. A small amount of the P-30 Silux was pressed over the Scotchbond layer and cured for 20 seconds similarly. Additional composite was added to fill the cylindrical mould and the procedure completed as before with 30 seconds curing of the cylinder from above and additional periods of 30 seconds on opposite sides after removal from the mounting jig. The samples were stored in distilled water at 37°C for 1, 7 or 30 days until testing.

pH change on setting was followed using a combination flat surface electrode (Fisher Cat. No. 13-639-83) and an Accumet pH meter model 620. The cements were mixed according to instructions and 30 seconds after the start of mixing was recorded as true 'O'. The electrode was brought into contact with the unset cement and, after setting, a microdrop of distilled water was used to moisten the cement surface before measurement as described elsewhere.⁸ The electrode was calibrated with standard buffer solutions at pH 4 and 7.

Radiopacity was evaluated on cement bars 25 × 15 × 2 mm moulded in polyethylene moulds. After 24 hours setting, the cement bars and an A1 step edge (1 to 7 mm) were radiographed in duplicate. The samples were exposed on a Ultraspeed DF57 radiographic film for 5/6 seconds with a Belmont Acuray Model 071A radiographic unit operated at 70kV and 10mA. The opacity readings were done using a Macbeth TD 504 instrument calibrated at 'zero' value for white light. The instrument has a scale from 0 to 4.

Statistical analysis of the data was performed by means of two way analysis of variance.

Results

Basic information on the cements used, batch numbers etc. is given in Table 1.

The pH changes for the setting cements are given in Table 2. The data are the mean of duplicate determinations.

The tensile and shear bond strength data for the adhesion of the cements to bovine dentin are given in Table 3. The data were analysed by a two way ANOVA to test for the effect of time and cement type on the bond strength between GIC and dentin.

There were significant differences in shear bond strength with time for the different cements but not in tension. Assessments of the fracture site distribution are given in Table 4. Additional bond strength specimens were tested after the dentin surface had been treated with 35 per cent phosphoric acid for 60 seconds to evaluate the effect of acid treatment in relation to the bonding mechanism. These data are given in Table 5. The data were analysed by a two way ANOVA to test for the effect of time and surface preparation and for the effect of cement type and surface preparation on the bond strength between GIC and dentin. The results showed little difference, at least in the short term, in bond strength although statistically significant at $p < 0.05$.

Bond strengths for the composite systems to the glass ionomer cement surfaces are shown in Tables 6 and 7. The data were analysed by a two way ANOVA to test for the effect of time and surface preparation and for the effect of time and cement type on the bond strength between GIC and composite. The data suggested that each material combination gave different results. The results for failure site are given in Table 8. It is evident that the etch bonds are particularly apt to failure cohesively.

The microdensitometry data for the A1 step wedge and the bar samples of the materials are presented in Table 9. An example of a radiograph of the specimens is shown in Figure 1.

Discussion

For their use as cavity lining materials, cements are required to set quickly and sharply especially if, as is the case with current glass ionomer cement materials, they are to be etched or treated to provide a strong bond to the overlying composite restorative material.⁵ The glass ionomer cements, especially those for luting, have shown prolonged setting reactions as indicated by their pH change rate, and this has been associated with pulp sensitivity to the material.⁸ For the present lin-

ing materials, the data (Table 2) show that the pH changes are similar, but not identical. The GC and Ketac materials are below pH 2 at the start of measurement and for the first two minutes whereas the 3M material is substantially higher. By 3 min, the former have reached pH 3 and overtaken the latter. This suggests that the 3M material has a higher initial pH, but is slower in its initial reaction. This may facilitate longer working time. An initial pH below 2 particularly has been associated by Smith and Ruse⁸ with a potential pulpal response. In comparison to the luting materials,⁸ the period below pH 2 and even 3 is much shorter and similar to the restorative materials. Thus, it seems unlikely that initial pulp response is to be expected with these materials.

After the initial differences, the pH pattern over the next 45 minutes is similar for the three materials. The GC material then rises above the other materials to a final neutral pH which is one unit higher than the similar values for the Ketac and 3M materials. This may indicate a more complete setting for the former. However, the pH change for the other materials, especially the 3M product, is close to that found for a glass ionomer restorative material⁸ for which no adverse tissue response has been reported.

The bond strengths of the lining materials to dentin (Table 3) are higher in shear than in tension. On storage, the bond strengths remain about the same or show a slight increase in shear. These trends have been noted in previous work.⁹⁻¹⁶ These values are also similar to those reported in other studies,¹⁶⁻²⁰ i.e. in the range 1-4 MPa for both tension and shear. The actual values are, of course, a function of the substrate — human or bovine — and the testing conditions.

The data on the present materials show that comparable initial and 30 day strengths are obtained for the Ketac and 3M materials with lower results for the GC material. The tendency to lower bond strengths on prolonged storage for the latter may be due to water sorption. This may be offset for the other materials by improvement in strength. Visual inspections suggested that in tension, the adhesive (interface) failure tended to increase with time. Evidence for improved bond with time for glass ionomer cements has been noted by Powis *et al.*,⁹ Smith and Ruse¹² and McCabe and Walls,¹⁴ but not by Beech.¹⁰ As shown by the foregoing authors and others, however, the 'bond strength' is a measurement of the weakest link in the bonded system and frequently involves cohesive fracture within the glass ionomer cement close to the

interface — a matter that can only be resolved by SEM rather than visual examination of the fractured interfaces.¹⁵

As is also well-known,¹³ the bond strength may be significantly affected by dentin surface preparation and treatment procedures including the use of acidic agents.^{9,10,17,18} In this context, the data of Table 5 are extremely interesting in demonstrating that higher bond strengths were obtained after dentin treatment with 37 per cent phosphoric acid for GC and Ketac. The Ca content of this surface is reduced by such treatment (Ruse and Smith 1986, unpublished results) which

would be expected to reduce any poly-acrylate adhesion. The surface roughness and porosity are increased also, thus these data would indicate that improved surface wetting and micromechanical interlocking by the cement are responsible for the improved bonding to an etched surface. It was previously demonstrated that tubular penetration of GIC under such circumstances can occur.¹⁵

This raises the question of the relative contributions of adhesion and interlocking to the 'normal' mechanically-prepared dentin surface — a matter which is still the subject of controversy.^{13,21}

TABLE III

Bond strength of glass ionomer cements to dentin

Test mode	Time days	GC	Bond strength Ketac	3M
Shear	1	2.0 ± 0.3	2.9 ± 0.7	2.7 ± 0.5
	7	1.9 ± 0.3	3.2 ± 0.5	1.9 ± 0.5
	30	1.5 ± 0.5	3.9 ± 0.2	3.1 ± 0.9
Tension	1	1.5 ± 0.5	1.7 ± 0.4	1.5 ± 0.5
	7	1.6 ± 0.3	2.2 ± 0.6	1.4 ± 0.5
	30	0.9 ± 0.6	2.0 ± 0.6	1.7 ± 0.6

TABLE IV

Failure distribution for cement dentin adhesion

Test mode	Time days	GC		Ketac		3M	
		C%*	A%*	C%	A%	C%	A%
Shear	1	100	0	100	0	100	0
	7	100	0	100	0	100	0
	30	100	0	100	0	100	0
Tension	1	30	70	25	75	15	85
	7	30	70	10	90	30	70
	30	5	95	10	90	10	90

*C = cohesive failure A = adhesive failure

TABLE V

Bond strength to dentin with acid etch

Test mode	Time Days	GC	Bond strength (MPa) Ketac	3M
Shear	No etch	2.0 ± 0.3	2.9 ± 0.7	2.7 ± 0.5
	etch	2.6 ± 0.8	4.3 ± 0.7	2.7 ± 0.5
No etch	7	1.9 ± 0.3	3.2 ± 0.5	1.9 ± 0.5
	etch	2.2 ± 0.5	4.2 ± 0.6	2.6 ± 0.6
Tension	No etch	1.5 ± 0.5	1.7 ± 0.4	1.5 ± 0.5
	etch	1.7 ± 0.7	2.7 ± 0.5	1.4 ± 0.6

TABLE VI

Shear bond strengths of glass ionomer cements to composite resins

Composite Resin	Cement	Surface Preparation	Bond strength in MPa		
			Time in days		
			1	7	30
P-30	GC	no etch	4.3 ± 1.2	5.3 ± 0.5	5.1 ± 0.5
		etch	3.0 ± 1.4	4.4 ± 0.9	4.2 ± 0.8
	Ketac	no etch	3.4 ± 1.1	1.7 ± 0.8	1.7 ± 0.5
		etch	4.1 ± 1.0	4.5 ± 1.3	3.4 ± 1.0
	3M	no etch	5.1 ± 1.7	4.0 ± 1.4	2.3 ± 0.5
		etch	2.0 ± 0.4	3.0 ± 0.8	5.8 ± 0.4
Silux	GC	no etch	4.9 ± 1.1	5.5 ± 0.8	4.8 ± 1.6
		etch	4.1 ± 1.1	4.5 ± 0.9	3.9 ± 1.7
	Ketac	no etch	4.0 ± 1.0	3.4 ± 1.1	2.1 ± 1.4
		etch	2.7 ± 0.4	4.3 ± 1.0	1.5 ± 1.5
	3M	no etch	4.9 ± 1.3	4.8 ± 0.7	5.5 ± 1.4
		etch	2.7 ± 0.5	3.2 ± 0.3	3.1 ± 0.4

TABLE VII

Tensile bond strengths of glass ionomer cements to composite resins

Composite Resin	Cement	Surface Preparation	Bond strength in MPa		
			Time in days		
			1	7	30
P-30	GC	no etch	2.7 ± 0.6	1.8 ± 0.9	2.0 ± 0.8
		etch	4.1 ± 1.0	3.9 ± 0.8	3.5 ± 0.7
	Ketac	no etch	1.2 ± 0.4	0.6 ± 0.4	1.5 ± 1.2
		etch	4.1 ± 0.8	3.1 ± 1.0	5.5 ± 1.7
	3M	no etch	2.0 ± 0.4	2.2 ± 0.4	3.7 ± 1.2
		etch	2.3 ± 0.2	3.5 ± 0.6	3.9 ± 1.6
Silux	GC	no etch	2.7 ± 1.0	3.3 ± 0.4	3.1 ± 1.1
		etch	3.8 ± 1.2	4.5 ± 0.6	3.3 ± 0.5
	Ketac	no etch	2.0 ± 0.9	3.8 ± 1.2	2.4 ± 1.1
		etch	4.0 ± 1.5	7.1 ± 0.6	5.5 ± 1.5
	3M	no etch	2.1 ± 0.3	4.0 ± 1.2	5.0 ± 0.9
		etch	3.8 ± 1.2	4.4 ± 1.0	4.6 ± 0.8

Clearly, further investigation on well-defined surfaces using a more comprehensive statistical approach such as that proposed by McCabe and Walls¹⁴ is needed.

Whatever the precise mechanism, the magnitude of the bond appears both durable, as suggested by the present data, and reliable for clinical success of the GIC in such situations as erosion cavities as pointed out by Vougiouklakis *et al.*¹⁵ and by Beech *et al.*¹⁰ and Beech.²² The former authors considered that a tensile bond strength of at least 3 MPa was needed for success in the erosion lesion situation for GIC restorative materials whereas the latter suggested a minimum of 2 MPa. For a cavity lining situation, the stress conditions are different both in relation to the size and shape of the cavity, the bulk of material and the polymerization shrinkage and viscoelastic characteristics of the overlying resin.²² Beech²² cites data from Asmussen and Munksgaard⁴ that leads to a bond strength requirement of 20 MPa to avoid marginal gaps arising from resin shrinkage. Such large stresses created by polymerization shrinkage may be minimised by manipulation procedures.⁷ In the present context, the bond strengths are close to, or within, the 2-3 MPa range and, thus, may be satisfactory in many clinical situations. However, treatment procedures or materials that improve bond strength would be desirable while at the same time not compromising long-term durability.

Shear bond strengths of the composite resin/Scotchbond combination with the glass ionomer cements (Table 6) were also higher overall than the correspond-

TABLE VIII

Failure distribution for cement composite adhesion

			GC				Ketac				3M			
			no etch		etch		no etch		etch		no etch		etch	
			C%*	A%*	C%	A%	C%	A%	C%	A%	C%	A%	C%	A%
Shear	P-30	1d	85	15	85	15	30	70	50	50	70	30	100	0
		1w	50	50	100	0	70	30	100	0	60	40	100	0
		1m	70	30	100	0	100	0	100	0	100	0	100	0
	Silux	1d	50	50	100	0	30	70	100	0	50	50	100	0
		1w	100	0	100	0	100	0	100	0	85	15	100	0
		1m	50	50	100	0	100	0	100	0	100	0	100	0
Tension	P-30	1d	90	10	85	15	5	95	95	5	90	10	80	20
		1w	25	75	95	5	100	0	35	65	60	40	90	10
		1m	20	80	40	60	100	0	50	50	60	40	50	50
	Silux	1d	50	50	80	20	5	95	90	10	65	35	95	5
		1w	30	70	80	20	100	0	40	20	35	65	30	70
		1m	0	100	0	50	100	0	20	70	35	65	100	0

* C = cohesive failure A = adhesive failure

ing tensile bond strengths (Table 7). However, each combination showed specific behaviour. In shear, the initial bond strengths for the non-etch surfaces were higher than those for the etched surfaces for the GC and 3M materials whereas the reverse was the case for the Ketac. This may reflect differences in basic particle size/surface roughness and susceptibility to phosphoric acid etching. The difference between the GC and Ketac materials is surprising in view of the reported²³ greater roughness of the unetched Ketac surface. This suggests that in the present context the interaction of the Scotchbond with the specific GIC is important.

The effect of water in weakening the bond to the non-etched surface was pronounced with the Ketac-P30 and Ketac-Silux combinations and less marked for the etched surface, indicating the importance of creation of mechanical interlocking through etching with this system. The non-etch bond strengths also fell on storage in water for the 3M-P30 systems, but not for the corresponding etched surfaces. The best shear bond strength at 30 d was obtained with the 3M etched surfaces. These data are the reflection of the extent of mechanical interlocking and the effect of water on the interface and composite. It is important to note that in

TABLE IX

Radiopacity of glass ionomer cements

Material	Thickness (mm)	Mean opacity
A1	1	3.22
	2	2.76
	3	2.38
	4	2.11
	5	1.83
	6	1.60
	7	1.39
GC	2	2.22
Ketac gray	2	2.15
Ketac yellow	2	2.04
3M	2	1.67
dentin	2	2.32
enamel	2	1.92

many specimens, especially at the higher values, failure was clearly within the cement representing a definite cohesive fracture (Table 8). In general, the strength increase up to seven days may be attributed to improvement in the strength of the cement and the fall between seven and 30 d to the effects of water. Cohesive fracture in the GIC indicates, however, that hydrolysis of the Scotchbond was not a major factor.

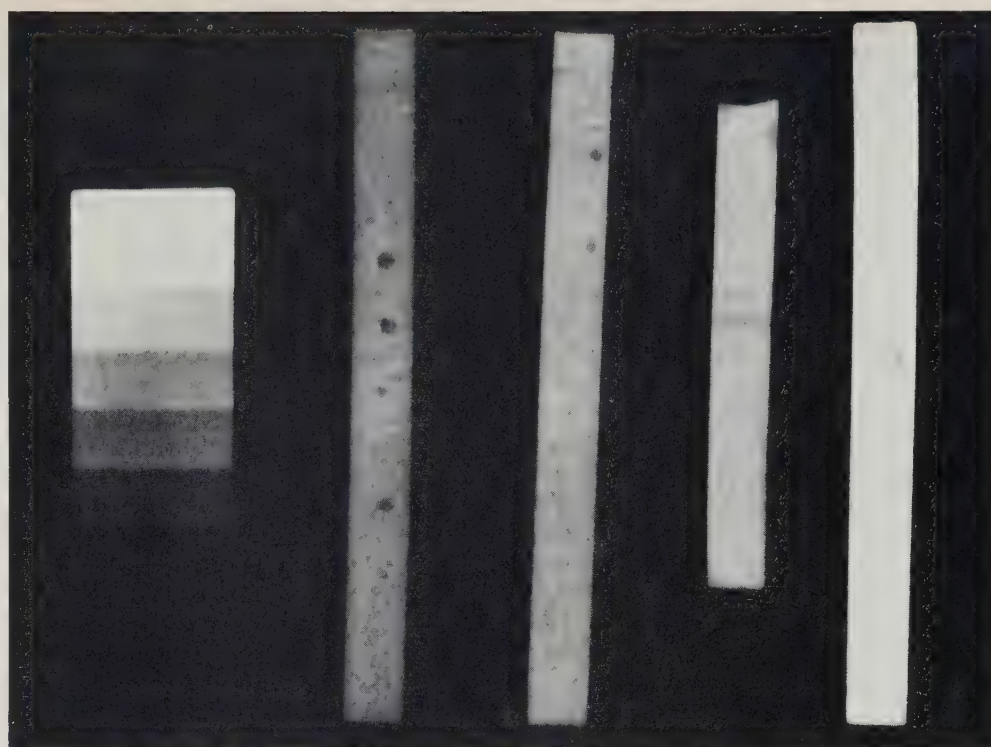


Figure 1 Radiographs of aluminum step wedge and bars of glass ionomer cement 2 mm thick. (cf Table 8) C.E.R. GC; Ketac gray; Ketac yellow; 3M.

The GC-Silux and 3M-Silux combinations showed durable bonding over the 30 d period for the non-etch and etch surfaces, although the latter results were uniformly lower. This may reflect better adaptation and wetting of the GIC surfaces by the Silux/Scotchbond combination coupled with some weakening of the interface by the etching process, i.e. the etching time should be minimal or some less vigorous agent should be used if surface treatment is applied. The tensile strength of these systems has not been determined, but bond strength values of 5-6 MPa may well represent the upper limit of the system as reflecting the cohesive strength of the cement^{13,23-25} (Table 7).

Somewhat similar considerations apply to the tensile bond data. The lowest values are found with Ketac for the non-etch specimens. The etch values are higher with GC for both resin systems. The bond strengths for the non-etch and etch conditions are similar for the 3M material with better results for the Silux combination compared to the P-30 system. Thus, no etching appears to be needed with the 3M material. The values found here are similar to those reported in other studies for the short-term tests.^{16,21-26} The higher values (5-7 MPa) approach the (diametral) tensile values for these cements as evidenced by cohesive fractures in the cement in many specimens (Table 8). Initial values in the 2-4 MPa range may be adequate to resist tensile

stresses in composite resin — bonding agent — lining cement combinations when the overlying resin is placed by layering and adequate enamel area is available to partly offset polymerization shrinkage.^{7,27,28} Under less favourable conditions when the dentin area predominates, enamel is minimal or only one surface and the resin restorative is placed in bulk, there would seem to be a danger of separation either at the lining cement interface or, more likely (cf. Tables 6, 7 and 8), at the dentin interface.⁷

Radiopacity of composite restorative systems, including the lining cement, is a preferred attribute by most dentists. The original glass ionomer restorative materials were not particularly radiopaque, but this can be achieved by the incorporation of appropriate elements into the glass or by addition of suitable opacifying agents to the cement powder. Contrast on X-ray film may be affected by technique and processing variables.²⁹ The present data were obtained under normal clinical conditions on dental X-ray film. The data (Table 9) show that the GC and the Ketac grey shade materials were similar in radiopacity, a 2 mm thickness being equivalent to 4.1 and 3.9 mm thickness of aluminium respectively. The Ketac yellow shade specimen was equivalent to a 4.2 mm of A1 whereas the 3M material was more radiopaque being equivalent to 5.5 mm of A1.

There appear to be no definite criteria for the minimum radiopacity of lining

cements. It has been considered that posterior composite resins should be as radiopaque as enamel.³⁰ Thus, lining cements would be expected to be at least as radiopaque as dentin. Data on posterior composites have been reported recently by Emir *et al.*²⁹ Thirteen materials were more radiopaque than enamel. Three composites were less opaque than enamel and five less than dentin. Thus, in comparison, all of the lining cements here are appreciably more radiopaque than dentin; the 3M cement is more radiopaque than enamel. The investigations of Tveit and Espelid³⁰ on caries and defects in relation to radiopaque composites suggest that the radiopacity characteristics of these GIC lining cements are satisfactory for clinical use.

Summary and Conclusion

1. Three glass ionomer cement (GIC) lining materials: GC lining cement (GC Corporation); Ketac Bond (Espe GmbH) and 3M Lining (3M Co.) were investigated to determine clinically important characteristics: — (a) bond strength to dentin in tension and shear; (b) bond strength of two composite resin systems P30-Scotchbond and Silux-Scotchbond (3M Co.) to the etched and non-etched GIC surfaces; (c) pH changes on setting; (d) radiopacity.

2. The initial acidity of the cement mix was greater for the GC and Ketac materials than for the 3M product. After three minutes pH changes of the three materials were similar and reached pH by 60 minutes. Final pH of the GC product was 7.0 compared to 6.0 for the other materials.

The data suggest that significant pulp response to the initial pH (acidity) is unlikely. The rate of pH change suggested that initial setting of the 3M product was slower and the GC material may be more fully reacted by 24 hours than the Ketac or 3M products.

3. Bond strength of the lining cements to dentin was higher in shear than in tension. The values were in the range 1-4 MPa. Comparable initial and 30 day bond strengths for Ketac Bond and 3M lining were obtained with lower results for GC Lining. Values for the former of 2-3 MPa appear satisfactory for clinical service in most situations. Acid etching of dentin improved short-term bond strength.

4. Shear bond strengths of the composite resin systems to the GIC were higher than tensile bond strengths. The effect of etching and storage varied with the material combination. After 30 days the P-30/Scotchbond/3M combination gave the highest result (5.8 MPa), but more con-

sistent results were obtained with the Silux/Scotchbond combinations which demonstrated no difference between etched and non-etched surfaces for 3M lining. Similar results were found in tension. The best values of 5-6 MPa appear to approach the cohesive strength of the cements as indicated by the fact that bond failure often occurred within the GIC layer. These bond strength values seem adequate when the overlying composite restoration is carefully placed in layers, but some interfacial separation may occur if a large bulk of composite resin were placed because of excessive polymerization shrinkage.

5. Radiopacity measurements showed that the 3M cement was more radiopaque than enamel. All of the GIC were more radiopaque than dentin. These characteristics seem quite satisfactory for clinical use. Δ

Dr. Smith is Professor and Head, Centre for Biomaterials, Faculty of Dentistry, University of Toronto.

Dr. Ruse is an MRC post-doctoral Fellow, Faculty of Dentistry, University of Toronto.

Mr. Zuccolin is a research technologist, Faculty of Dentistry, University of Toronto.

Correspondence to: Dr. D.C. Smith,
Faculty of Dentistry,
University of Toronto,
124 Edward Street,
Toronto, Ont. Canada
M5G 1G6

References

1. Smith, D.C. Posterior composite dental restorative materials: materials development. In: Vanherle, G. and Smith, D.C., eds. *Posterior Composite Resin Dental Restorative Materials*. St. Paul: 3M Co., 1985, 47-60.
2. Van Noort, R. Controversial aspects of composite resin restorative materials. *Br Dent J* 1983; 155:380-384.
3. Vanherle, G., Smith, D.C. *Posterior Composite Resin Dental Restorative Materials*. St. Paul: 3M Co., 1985, pp. 557.
4. Asmussen, E., Munksgaard, E.C. Adhesion of restorative resins to dental tissues. In: Vanherle, G. and Smith, D.C., eds. *Posterior Composite Resin Dental Restorative Materials*. St. Paul: 3M Co., 1985, 217-230.
5. McLean, J.W., Prosser, H.J., Wilson, A.D. The use of glass ionomer cements in bonding composite resins to dentine. *Br Dent J* 1985; 158:410-414.
6. Farah, J.W., Powers, J.M. Posterior composites. *The Dental Advisor* 1986; 3(2), 4.
7. Lutz, F., Krejci, I., Oldenburg, T.R. Elimination of polymerization stresses at the margins of posterior composite resin restorations: a new restorative technique. *Quintess Int* 1986; 17:777-784.
8. Smith, D.C., Ruse, N.D. Acidity of glass ionomer cements during setting and its relation to pulp sensitivity. *J Amer Dent Assoc* 1986; 112:654-657.
9. Powis, D.R., Folleras, T., Merson, S.A., Wilson, A.D. Improved adhesion of a glass

ionomer cement to dentine and enamel. *J Dent Res* 1982; 61:1416-1422.

10. Beech, D.R., Solomon, A., Bernier, R. Bond strength of polycarboxylic acid cements to treated dentine. *Dent Mater* 1985; 1:154-157.
11. Kullmann, W. Dentinhaft-komposit und glasionomer-Zement zur restauration zervikaler läsionen. *Dtsch Zahnärztl Z* 1985; 40:922-926.
12. Smith, D.C., Ruse, N.D. *In vitro* evaluation of adhesion to dentin of resin bonding agents. *J Dent Res* 1986; 65 (Special issue AADR Abstracts): 239 Abstr 624.
13. Walls, A.W.G. Glass polyalkenoate (glass-ionomer) cements: a review. *J Dent* 1986; 14:231-246.
14. McCabe, J.F., Walls, A.W.G. The treatment of results for tensile bond strength testing. *J Dent* 1986; 14:165-168.
15. Vougiouklakis, G., Smith, D.C., Lipton, S. Evaluation of the bonding of cervical restorative materials. *J Oral Rehabil* 1982; 9:231-251.
16. Munechika, T., Nishiyama, M., Kobari, H. Tensile bond strength of restorative composite materials to etched human dentin. *J Nihon Sch Dent* 1984; 26:243-5.
17. Hinoura, K., Moore, B.K., Phillips, R.W. Effects of surface treatment on the dentin-lining cement bond. *J Dent Res* 1986; 65 (Special issue IADR Abstracts): Abstr 775.
18. Long, T.E., Duke, E.S., Norling, B.K. Polyacrylic acid cleaning of dentin and glass ionomer bond strength. *J Dent Res* 1986; 65 (Special issue, AADR Abstracts): 345, Abstr 1583.
19. Andreus, S.B., Hermann, H.O. Liquid vs gel etchants on glass ionomers, effects on bond strengths. *J Dent Res* 1986; 65 (Special issue IADR Abstracts), Abstr 100.
20. Marker, V.A., Miller, D.L. Evaluation of a new glass ionomer cement. *J Dent Res* 1986; 65 (Special issue IADR Abstracts): 779, Abstr 478.
21. Dahl, B.L., Øilo, A. Retentive properties of luting cements: an *in vitro* investigation. *Dent Mater* 1986; 2:17-20.
22. Beech, D.R. Bonding of restorative resins to dentin. In: Vanherle, A. and Smith, D.C., eds. *Posterior Composite Resin Dental restorative materials*. St. Paul: 3M Co., 1985, 231-238.
23. Garcia-Godoy, F., Malone, F.P. The effect of acid etching on two glass ionomer lining cements. *Quintess Int* 1986; 17:617-9.
24. McLean, J.W., Gasser, O. Glass-cermet cements. *Quintess Int* 1985; 16:333-343.
25. Sneed, W.D., Looper, S.W. Shear bond strength of a composite resin to an etched Glass ionomer. *Dent Mater* 1985; 1:127-128.
26. Causton, B.E., Williams, A., Sefton, J. Bonding Class II composites to etched glass ionomers. *J Dent Res* 1986; 65 (Special issue AADR Abstracts) 491, Abstr 29.
27. Lutz, F., Krejci, I., Luescher, B., Oldenburg, T.R. Improved proximal margin adaptation of Class II composite resin restorations by use of light reflecting wedges. *Quintess Int* 1986; 17:659-664.
28. Wettch, F.H., Eich, J.D. A method to reduce or prevent postoperative sensitivity with posterior composite resin. *Quintess Int* 1986; 17:667-76.
29. Omer, O.E., Wilson, N.H.F., Watts, D.C. Radiopacity of posterior composites. *J Dent* 1986; 14:178-179.
30. Tveit, A.B., Espelid, I. Radiographic diagnosis of caries and defects in connection with radiopaque composites. *J Dent Res* 1986; 65 (Special issue AADR Abstracts), Abstr 1374.

January 1989

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Checkout Insurance

1- CGI- Higher limits

2- Malpractice Higher limits

3- Check coverage levels

4- Call CDSPI

DO IT NOW!

Year end is a time for taking stock of the present and planning for the future. CDSPI would like to remind you that evaluating and updating the insurance that protects you, your family, and your dental practice, should be an important part of your planning.

Now is an excellent time to review your coverage. There are several CDIP Plan changes that will go into effect January 1st. You may want to take advantage of the higher insurance limits and take this opportunity to start the new year with the security of knowing that you have adequate amounts of insurance protection.

Remember that CDSPI's free Insurance Review Service will provide you with a written commentary on any private insurance policy or proposal, to help you make an informed decision.

Call CDSPI today.



CDSPI

For further information call CDSPI toll free, and a Personal Service Representative will be pleased to assist you.

1-800-268-5418 Western Canada, Atlantic Canada and Ontario Area Code 807

1-800-268-3411 Québec and Ontario **except** Area Code 807

497-7117 Metro Toronto

This material has been approved by our consultants/brokers and insurers.

RCDC'S K.J. PAYNTER MEMORIAL SYMPOSIUM



Roderick L. Moran, DDS, FRCD(C)

The 1988 K.J. Paynter Memorial Symposium was held in conjunction with the annual Convention of the Canadian Dental Association, in Edmonton.

The topic of the all-day session, with 13 presenters, was Cranio-Mandibular Function and Dysfunction.

Dr. Roderick L. Moran, DDS, FRCD(C), President of the Royal College of Dentists of Canada, was chairman of the symposium.

Abstracts of the presentations follow.



William W. Wood, BDS, DDS, MA, FRCD(C)

Biomechanical Significance of Muscle Size and Relationships to Teeth and Joints

William W. Wood, BDS, DDS, MA, FRCD(C)

ABSTRACT

The relationship between human masticatory muscle size and the biomechanical efficiency of tooth force generation in widely varying muscular and skeletal types is unknown. To address this problem, 22 subjects with different facial morphologies were selected, and magnetic resonance imaging, cephalometric radiography and data from dental casts were used to reconstruct their craniofacial tissues in three dimensions. Conventional cephalometric analyses were carried out to define the sample, and the cross-sectional sizes of the masseter and medial pterygoid muscles measured from reconstituted sections. The potential abilities of the muscles to generate bite forces at the molar teeth and mandibular condyles were calculated according to static equilibrium theory using the lengths of muscle, first molar and condylar lever arms. For half of the sample the maximum bite force generated between the right first molars was measured by biting on a small transducer mounted between the teeth.

There was a significant positive correlation ($p < 0.01$) between the cross-sectional areas of the masseter and medial pterygoid muscles. The masseter muscle was always a more efficient producer of vertically-oriented putative bite force than the medial pterygoid. There was no significant correlation between muscle cross-sectional areas and their respective putative bite forces. This suggests that there is no relationship between the tension-generating capacity



Laura R. Iwasaki, DDS, MRCD(C)

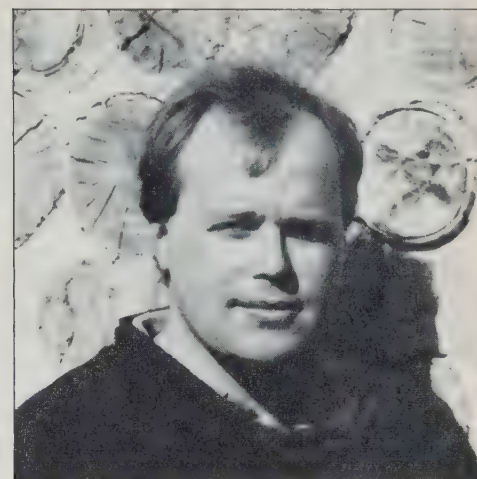
of the muscles and their mechanical efficiency as described by their spatial arrangement. There was a significant correlation ($p < 0.005$) between the masseter cross-sectional area and the measured bite force and between the medial pterygoid cross-sectional area and the measured bite force but no significant correlation between the putative bite force generated by virtue of the spatial position of each muscle and the measured bite force. In a modern human population so many combinations of biomechanically-relevant variables are possible that subjects cannot easily be placed into ideal or non-ideal categories for producing molar force. Our findings also confirm the impression that similar bite-force efficiencies can be found in subjects with disparate facial features but that the size of the major elevator muscles is the most significant factor in the generation of molar bite force.

Analyzing the Mechanics of Function: A New Use for Cephalometrics

L.R. Iwasaki* and K.R. McLachlan
University of Manitoba, Winnipeg

ABSTRACT

A three-dimensional, numerical model of the human chewing apparatus, developed to study the mechanics of the masticatory system (Smith *et al.*, 1986), has provided a more insightful approach to the fundamental understanding of the relationship between form and function. For the mechanical analysis of an individual, the anatomical relationships pertinent to biting are described relative to a functional reference, the occlusal plane. This three-dimensional data has been obtained for clinical subjects using standardized cephalometric radiographs, and used to



J.C. Nickel, DDS, MRCD(C)

investigate dentofacial form with respect to the mechanics of isometric biting (Iwasaki, 1987).

Mechanics Related to Osteodegenerative Change in the Human TMJ

J.C. Nickel* and K.R. McLachlan,
University of Manitoba

ABSTRACT

In a preliminary study, the magnitude of condylar loading, and joint surface disharmony were examined as potential factors in the development of osteodegenerative change of the temporomandibular joint (TMJ).

Using a computer model (Smith *et al.*, 1986), minimal TMJ loads were calculated for seven adult human skulls. The calculations indicated differences, between individuals, in the magnitudes of condylar load. This finding, conjoint with localized joint surface disharmony, may produce stress concentration, and be potentially important in developing site specific osteodegenerative change.

Functional Response of the Temporomandibular Joint to Surgical Orthodontics

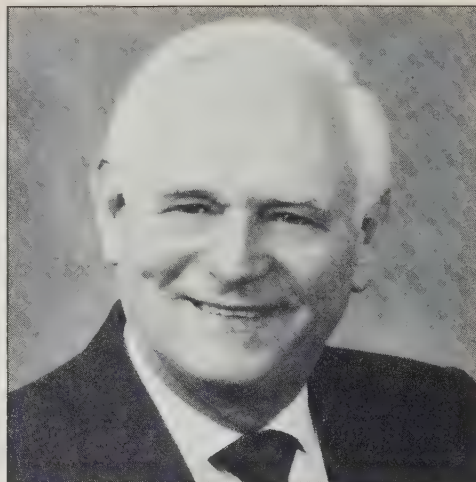
R.P. Harper, DDS, FRCD(C)

ABSTRACT

The purpose of this study was to identify the functional status of the TMJ prior to surgical orthodontics and to track changes using axiographic techniques, in response to treatment. Sixty joints were studied in 30 patients under the following categories: maxillary LeFort I impaction, mandibular reduction, mandibular advancement, and combined maxillary and mandibular osteotomy. Maxillary



R.P. Harper, DDS, FRCD(C)



N.R. Thomas, BDS, BSc, PhD, Cert. Oral Path., FRCD(C)



David Mock, DDS, PhD, FRCD(C)

procedures were assessed pre-orthodontic, pre-surgery, and post-surgery. Mandibular procedures were studied pre-orthodontic and post-surgery. Condylar shifting from CR to CO was recorded in three planes of space: x (horizontal), z (vertical), y (frontal), and monitored at each treatment phase.

Internal derangements were identified prior to treatment in 70 per cent of joints studied. TMJ rehabilitation was more favorable for mandibular reduction and maxillary impaction surgery than for mandibular advancement or combined upper and lower jaw procedures. Condylar stability in maxillary procedures was most labile after the initial orthodontic phase as changes from CR to CO caused distraction in the x and z axis. Condylar stability was enhanced after treatment in all groups as Δx , Δz and Δy values approached zero.

This study has identified pre-existing internal derangements in surgical orthodontic patients and has documented the effects of this treatment on TMJ function.

The Effect of Fatigue and T.E.N.S. on the E.M.G. Mean Power Frequency

N.R. Thomas and K. Cavers
University of Alberta, Edmonton

ABSTRACT

It has previously been shown in our laboratory that the peak power frequency of the masseter electromyograms (EMG) of temporo-mandibular joint dysfunction (TMJ) patients is shifted to lower frequencies (~ 26 Hz) as is that of the fatigued spectrum of normal patients relative to resting controls.

The spectral peak is a somewhat unstable

measurement so this study was undertaken to observe the effect of fatigue and transcutaneous electroneural stimulation (TENS), a TMJ treatment modality, on the mean power frequency (MPF) of masticatory EMGs, as this better reflects overall activity of the muscle. Surface EMGs of the masticatory muscles of randomly selected TMJ and normal subjects were submitted to fast Fourier transform (FFT) under resting, fatigued and post TENS condition.

Fatigue shifted MPF to lower frequencies in 77 per cent of normal and only 42 per cent of T.M.J. subjects. The remainder shifted to higher frequencies. The pattern and extent of the shift was subject specific over several days of testing. The results suggest the involvement of some individual specific and functionally related factor such as muscle fibre composition and size. *T.E.N.S. is an effective method for relaxing fatigued masticatory musculature.*

Differential Diagnosis of Facial Pain

David Mock, DDS, PhD, FRCD(C)

ABSTRACT

The diagnosis of craniofacial pain is among the most difficult challenges that can present to a physician or dentist. In general, the basis for the patient's pain can be organic disease, a neurological disorder or it may be of psychogenic origin. These are not independent factors but, in fact, often interact such that the patient's symptoms are complicated by multiple influences. The longer the patient has been in pain, the more difficult the diagnosis. Within this small area, there are a number of anatomical structures, all of which may initiate or alter the presenta-

tion of the patient's symptoms. Similarly, such patients have often undergone multiple procedures attempting to alleviate their pain and the result may further confound the diagnosis.

A neurological disorder may not manifest all its characteristics and the nature of the patient may influence both the character and intensity of the symptoms and signs. Thus the diagnosis of facial pain can be an exasperating experience requiring both patience and care. The rewards, when the correct diagnosis leads to appropriate treatment can be as great as the disappointment and frustration experienced.

Conservative Management of Temporomandibular Disorders

H.C. Tenenbaum, DDS, D. Perio, PhD

ABSTRACT

The identification and treatment of Temporomandibular Disorders (TMD) is a difficult and sometimes unpredictable process. In part, this is due to the complex nature of TMD problems in particular and facial pain in general. It is not uncommon for example, for TMD treatment to fail because the condition being treated is not TMD but rather some other facial pain disorder. Similarly some facial pain problems are not easily recognized as TMD and are inappropriately and unsuccessfully treated.

In assessing patients for facial pain and TMD in particular, it is essential that full dental, periodontal, soft tissue, muscle and joint examination be performed. In so doing one can identify for example a primarily odontogenic pain which may have precipitated a secondary but no less painful TMD. Moreover, in performing both muscle and joint examination it is



H.C. Tenenbaum, DDS, D. Perio, PhD.

possible to elucidate the particular features of an authentic TMD problem. In this regard, many cases of TMD present with either primarily TM-joint associated pain (or clicking), muscle associated pain, or some combination of the two. The importance of characterizing TMD in the aforementioned manner is that an understanding of the source of a particular patient's TMD pain will ultimately dictate treatment. For example, if a TMD patient's pain has been primarily identified as being joint capsule related with no muscle pain, it would make little sense to treat this person with muscle relaxant medications or techniques. Similarly, we have found that whereas joint capsule associated pain does respond well to treatment with non-steroidal anti-inflammatory drugs, muscle spasm associated pain does not. As well, moist heat application over a sore muscle is often quite soothing, but if the heat source is held over an inflamed TM-joint, a significant exacerbation of pain can ensue.

In view of the above and the complex nature of TMD it is recommended that whenever possible, treatment be designed in relation to the primary sources of pain. Such treatment, and in particular, initial treatment, should be non-invasive and reversible. For this purpose we will employ a range of medicinal approaches involving trial drug therapy which would include the use of non-steroidal anti-inflammatories, as well as muscle relaxants (Short term, and for diagnostic purposes as well as acute myospasm).

In addition, physiotherapy has been utilized effectively for the treatment of muscle associated pain and limited opening as well as some mild internal derangement problems. Flat plane bite therapy is a most useful tool for treatment of bruxism



Mr. Martin Parfitt

as well as bruxism induced joint and muscle pain.

Insofar as muscle spasm pain is concerned, certain individuals who respond to physiotherapy but relapse (with or without bite planes) during times of stress, are treated with stress management, biofeedback approaches.

Clearly, the above treatment approaches will not always be entirely effective for TMD. Often pain is significantly reduced but not completely eradicated. However, failure to respond if only partially to these approaches is not necessarily an indication for more aggressive or invasive treatment. Further evaluation of the patients should be undertaken in order to ascertain whether in fact an authentic TMD condition is being treated or whether another underlying condition is present.

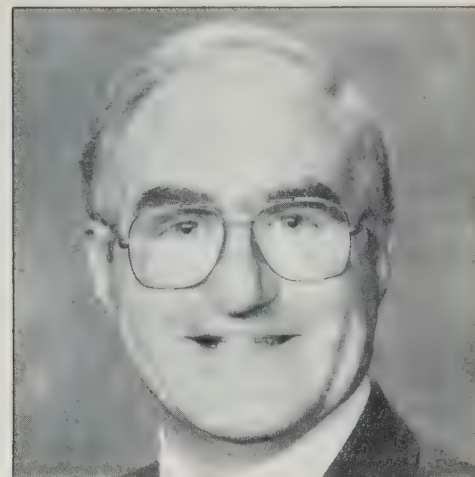
Indications and Contraindications for Physiotherapy Intervention in the Treatment of TMJ Patients

Mr. Martin Parfitt

ABSTRACT

Physical therapy is closely involved in the rehabilitation of patients with disorders of the temporomandibular apparatus. In certain situations physical therapy will not be effective in treating TMJ dysfunction. It is still necessary to screen out other musculo skeletal dysfunctions which could be involved or inhibit recovery, as well as developing an effective home management, prevention and maintenance program to achieve the maximum possible recovery for each patient.

The factors influencing the decision of if, or when to include physical therapy in a patient's treatment program is discussed.



Colin Price, BDS, FDSRCS(Eng.), MDS, FRCD(C)

Included was reference to:

1. Influence of other musculo skeletal factors on the TMJ apparatus.
2. The type of physical therapy treatment that is most effective with the various signs and symptoms found in dysfunction of the TMJ apparatus.
3. A proposed hierarchy of treatment in patients with dysfunction of the TMJ apparatus.
4. Effects of physical therapy.

Magnetic Resonance Imaging of the Temporomandibular Joint

Colin Price, BDS, FDSRCS(Eng.), MDS, FRCD(C)

ABSTRACT

Magnetic Resonance Imaging provides good visualization of the disc position, morphology and range of movement. It is painless and non-invasive and does not distend the joint compartments. However, it is expensive and of limited availability.

Normal joints show almost equal range of movement in both compartments. Internal derangements with reducing discs show increased movement in the lower compartment and reduced movement in the upper compartment. Non-reducing displacements show limitation of movement in both compartments. Disc displacement correlates poorly with pain and dysfunction.

Multidisciplinary Teamwork Approach to Occlusion Related Temporomandibular Joint Problems

T.D. Carlyle, DDS, MSc, MRCD(C)

ABSTRACT

Since the 1960's, there has been a dramatic increase in the number of people



T.D. Carlyle, DDS, MSc, MRCD(C)

presenting for comprehensive dental treatment. As many individuals have a spectrum of dental problems, the dentist must rely more and more on a well defined and integrated treatment program with specific goals for preservation of the dentition.

The patient/client must be made aware of the importance of a coordinated treatment program involving, perhaps, many specialists in order to provide optimal treatment.

Dr. Carlyle presented the diagnostic and treatment protocols for a series of occlusion related, and TMJ related problems, utilizing, in particular, the orthodontist, oral surgeon, restorative specialist and periodontist.

The Diagnostic Contribution of Temporomandibular Joint Arthrography

M.J. Pharoah, DDS, MSc, FRCD(C)

ABSTRACT

The quality and quantity of information derived from this diagnostic procedure is dependent upon the technique used. To maximize the information obtained, the procedure should be done under fluoroscopic monitoring.

Observing the flow of the contrast medium aids in the diagnosis of perforations and indirectly the presence of adhesions. Using a minimal amount of medium facilitates observations of the dynamics of the joint without distortions caused by an abundance of contrast fluid. To maximize the radiologic information obtained both joint spaces should be filled. Accuracy will be enhanced by the use of multi-directional tomography and double contrast techniques.

Arthrography combined with tomog-



Michael J. Pharoah, DDS, MSc, FRCD(C)

raphy can indicate the direction and severity of disc displacements. The frequency and the point at which disc reduction occurs can also be determined. High quality films will indicate the morphology of the disc from the lateral to medial aspect as well as the shape of the posterior attachment.

However, when the disc is grossly deformed, difficulty may arise in the accurate identification of the disc position. The presence of contrast medium within the joint spaces does influence the motion of the disc during translatory movements of the condyle.

In summary, arthrography can provide accurate information regarding the soft tissue components of the temporomandibular joint. The value of this information will rely on the ultimate evolution of various treatment modalities which must have substantial clinical data supporting their effectiveness.

Mandibular Dysfunction and Prosthodontics

L. Frances Greenwood, BDS, DDS, PhD

ABSTRACT

There is long-standing evidence of a correlation between mandibular dysfunction and the number of teeth lost both in patient groups¹ and in population studies,^{2,3} but it was not until 1985⁴ that it was shown that the severity of mandibular dysfunction increased progressively from a fully dentate group, through those missing one, two or three zones of posterior support and those with only anterior teeth remaining to those who were fully edentulous and had no support at all on natural teeth. The single most significant item in the dysfunction index was tenderness to palpation in the lateral pterygoid region, a finding which has



L. Frances Greenwood, BDS, DDS, PhD

been confirmed in other studies of fully edentulous groups.^{5,6,7}

Constructing full dentures for edentulous patients improved their mandibular dysfunction scores and headaches but did not return them to dentate levels,^{6,7} nor did the amount of dysfunction correlate with the stability or retention of the dentures.⁴ More mandibular dysfunction was associated with dentures more than six years old.⁷ In the case of partial edentulism there was little advantage in denture wear, although dentures that were better retained were associated with less dysfunction.⁴ There was no systematic relationship between vertical dimension of occlusion nor occlusal factors in the dentures and the severity of mandibular dysfunction.

References

1. Franks, A.S.T.: The dental health of patients presenting with temporomandibular joint dysfunction. *Br. J. Oral Surg.* 5:157-165, 1967.
2. Helkimo, M.: Epidemiological surveys of dysfunction of the masticatory system. In *Temporomandibular Joint Function and Dysfunction*. eds. G.A. Zarb and G.E. Carlsson. C.V. Mosby Co., St. Louis, 1979.
3. Agerberg, G. and Carlsson, G.: Functional disorders of the masticatory system. *Acta Odontol. Scand.* 30:597-613, 1972.
4. Budtz-Jorgensen, E., Luan, W.M., Holm-Pedersen, P., and Fejerskov, O.: Mandibular dysfunction related to dental occlusal and prosthetic conditions in a selected elderly population. *Gerodontology* 1:28-33, 1985.
5. Choy, E. and Smith, D.E.: The prevalence of temporomandibular joint disturbances in complete denture patients. *J. Oral Rehab.* 7:331-353, 1980.
6. Magnusson, T.: Changes in recurrent headache and mandibular dysfunction after treatment with new complete dentures. *J. Oral Rehab.* 9:95-105, 1982.
7. Sakurai, K., San Giacomo, T., Arbree, N.S., and Yurkstas, A.A.: A survey of temporomandibular joint dysfunction in completely edentulous patients. *J. Prosthet. Dent.* 59:81-85, 1988.



E. Wayne Tunis, BSc, DDS, FRCD(C)

Surgical Considerations of Temporomandibular Joint Disorders

E. Wayne Tunis, BSc, DDS, FRCD(C)

ABSTRACT

Surgery is generally not a first choice treatment for patients with internal

derangements. As many of these conditions may end up being self-limiting, we would like to avoid irreversible, invasive procedures if at all possible. Surgery is, therefore, only considered for a disc derangement that:

1. is the primary source of pain and dysfunction,
2. constitutes a disability to the patient,
3. is refractory to *appropriate* non-surgical management (3-6 mo.),
4. is repairable
5. is documented arthrographically.

The patients who respond best to surgical intervention are those who exhibit symptoms of true joint disease: localized pain, pain worsening with function, continuous pain and evidence of mechanical interferences. Patients with diffusely spread pain and multiple varied complaints have a significantly decreased chance of a satisfactory surgical result. This is because the joint itself may be a relatively minor part of their entire pain problem. The true cause of the pain is

therefore not being addressed. Proper diagnosis is the key to success. If significant muscular and psychological overtones are present, they *must* be addressed, preferably prior to any surgical procedure. If these problems can be remedied, the degree of residual pain and dysfunction may not be severe enough to warrant a surgical approach.

Currently available procedures

Until recently (1985) the most common approach to surgical intervention in TMJ internal derangements was via an open surgical procedure or arthrotomy. A closed condylotomy procedure was popular for a while but did not really address many aspects of internal derangements and is therefore of limited value. In 1985 the first surgical arthroscopic procedures were reported and this very conservative approach has been increasing in general availability and usefulness. A brief review of the available procedures was presented.

DENTIST WANTED

The Towns of Porcupine Plain and Kelvington located adjacent to Greenwater Provincial Park require the services of a dentist.

With a trading population of over 30,000 plus a spectacular parkland environment this area is an excellent business opportunity as well as the setting for a rich living experience.

Equipped clinic space in place at reasonable rates.

For further information contact:

Ivy Sexsmith
327-4817 or 327-4422
or

Rose Johnson
327-4268 or 327-4422
Town of Kelvington,
Box 10,
Kelvington, Sask.,
S0A 1W0

Barry Warsylewicz
Town of Porcupine Plain
Box 310,
Porcupine Plain, Sask.,
S0E 1H0
278-2262



THE UNIVERSITY OF
BRITISH COLUMBIA

FACULTY OF DENTISTRY NOTICE OF VACANCY - ORAL RADIOLOGY

Applications are invited for a full-time position in Oral Radiology, Department of Oral Medical and Surgical Sciences, University of British Columbia, Vancouver, Canada. The candidate must have completed an accredited graduate program and demonstrated ability in independent research. Responsibilities will include teaching in undergraduate and post-graduate programs, consultative activities to the dental profession and to several teaching hospitals, active research and administrative duties pertaining to teaching, research and service functions. This appointment is a tenure track position at Assistant or Associate Professor level with a salary commensurate with the qualification and experience of the successful candidate. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of British Columbia is an equal opportunity employer. The position is to be filled by July 1, 1989 or as soon as possible thereafter.

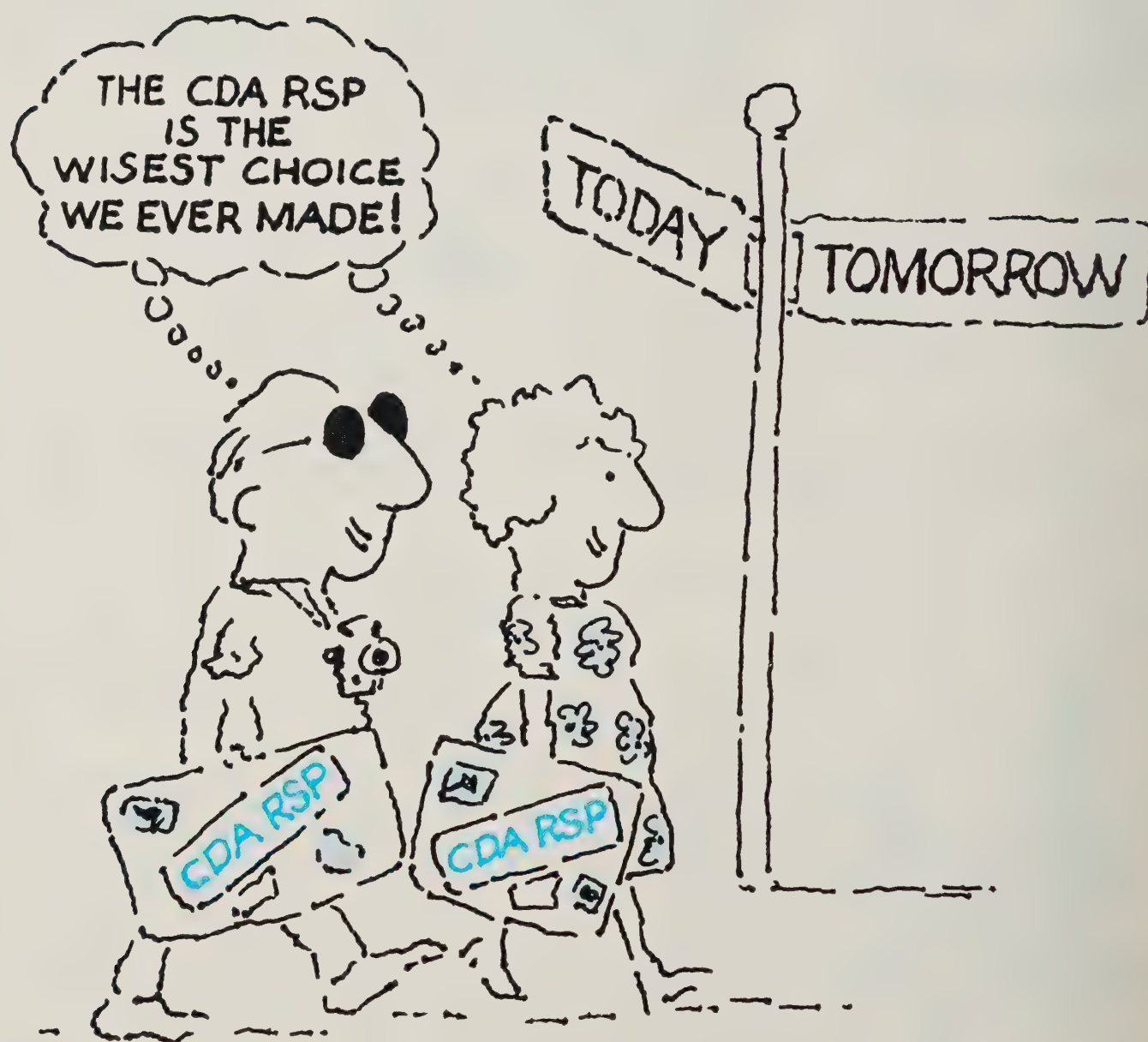
This position is subject to final budgetary approval by the University.

Applicants are requested to forward a letter of application and curriculum vitae. In addition they should arrange for the names of three referees be forwarded independently. Deadline for receipt of material is January 31, 1989. Applications or further enquiries may be directed to:

Dr. David Donaldson, Head
Department of Oral Medical and Surgical Sciences
Faculty of Dentistry, University of British Columbia
2199 Wesbrook Mall, Vancouver, B.C. V6T 1Z7
Telephone: (604) 228-3563

WHY PLAY

BECAUSE T JUST AROUND



THE RETIREMENT ADVANTAGE
ONLY DENTISTS CAN HAVE

N TODAY?

MORROW IS THE CORNER

\$3,651,389

RESULTS ARE WHAT YOU GET WHEN YOU INVEST
IN THE CDA RSP!

LET OUR GIC FUND SHOW YOU. NOW!

OPEN YOUR CDA RSP TODAY!

\$472,519

Age 25

Age 45

Age 65

(ASSUMING CONTRIBUTIONS OF \$7500 ANNUALLY, COMPOUNDED AT 10%)

CDA RSP OFFERS:

- High Interest Rates
- 5 Funds to choose from in one plan
- No front end load fees
- No commissions
- No opening fees
- No closing fees
- No fees to switch from one fund to another
- Low administration fees
- Knowledgeable and friendly staff

IT'S YOUR PLAN!
IT'S YOUR FUTURE!

**SOLID PERFORMANCE FOR
MORE THAN 31 YEARS**

A MEMBERSHIP SERVICE OF THE CDA

For further information, or answers to any RSP question, call CDSPI toll free. For current interest rates, unit prices or information kit ask for the RSP "Hot Line".



CDA RSP

1-800-268-5418
Western Canada, Atlantic Canada and
Ontario Area Code 807
1-800-268-3411
Québec and Ontario except Area Code 807
497-7117
Metro Toronto

YES! *I want the advantage.*
Please send me your latest CDA RSP Information Kit.

Name _____

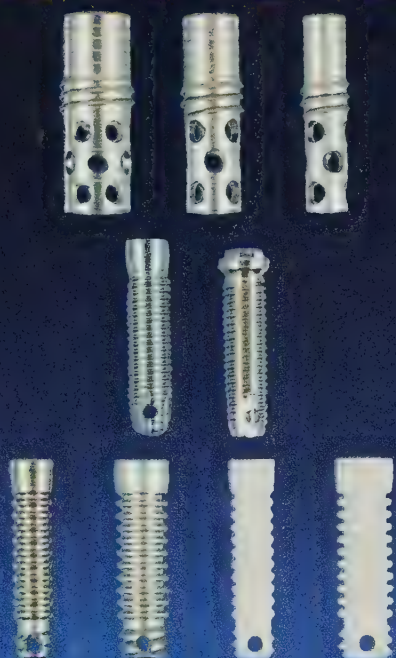
Address _____

City _____ Prov. _____

Postal Code _____ Tel. _____

Return to: CDSPI, 600-2 Lansing Square, Willowdale, Ontario M2J 4Z3

INDEPENDENT CLINICAL REPORT CITES CORE-VENT ADVANTAGES



"Complete System"
"Moderate Cost"
"Clinical Success"

Clinical Research Associates of Provo, Utah, reported on the Core-Vent System of Osseointegrated Implants in its March, 1988, newsletter. The section entitled "Advantages" is quoted verbatim below:

- A. Complete system.** Other products available address specific aspects of implant procedures, but none offer broad range of Core-Vent System.
- B. Moderate cost.** Considerably less than Branemark, and less than most other systems also.
- C. Company responds rapidly to dental clinical needs.** New designs and changes in old designs have been developed as practitioners expressed need.
- D. Surgical procedures are made simple.** Many sizes and types of implants offer range of alternatives and accommodate most clinical needs. Clinical success of system throughout profession demonstrates concept is relatively easy to understand and use.
- E. Adapts well to both fixed and removable prosthodontic needs.** Bendable and castable abutments allow angulation of coronal positions and choice of 12 threaded and 10 cemented abutment options for Core-Vent, Screw-Vent and Micro-Vent. Numerous designs allow versatility necessary to adapt implant to individual patient needs.
- F. Broad education resources offered, but not requisite for purchase.** Include videos for clinician and patient, hands-on and lecture courses, annual symposium and manuals.
- G. Primate studies show Core-Vent comparable to well established Branemark System.** (J Dent Res vol 67, March '88-[1] Boyne, et al, Abs. #557, p. 182; and [2] Beirne, et al, Abs #558, p. 182.)

Core-Vent Implant Training Programs

TORONTO
December 9 & 10

Two-day Surgical/Prosthetic Course

- Full Tuition Rebate
- Two Hands-on Sessions
- Second Day Prosthetic Option

Tuition

Two-day Surgical/Prosthetic Course \$600 U.S.
Prosthetic Course Only (second day) \$200 U.S.

FOR REGISTRATION INFORMATION
CALL THE CORE-VENT EDUCATION DEPARTMENT
1-800-551-3838



CORE-VENT

C O R P O R A T I O N

15821 Ventura Boulevard, Suite 420, Encino, California 91436
(818) 783-1517 • FAX (818) 789-3928 • U.S. 800-551-3838
No. CA 800-451-4900 • So. CA 800-346-5222 • In Canada 800-263-1644

Annual Index

THE JOURNAL OF THE CANADIAN DENTAL ASSOCIATION ANNUAL INDEX Volume 54, Numbers 1 – 12.

As part of a continuing effort to improve the Journal, the index to the 1988 volume of the Journal of the Canadian Dental Association has been reorganized by the staff of the CDA Library/Resource Centre to simplify the retrieval of articles and documentation.

The new format includes three separate indexes: an author, subject and book review index. The subject headings have been assigned in accordance with those established by the National Library of Medicine. Each entry is followed by the abbreviated month and the page number in the Journal.

1988

AUTHORS' INDEX

A

Albert, R.J., 751-8.
Asgar, K., 343-7.

B

Banting, D., 595-8.
Barsky, R.L., 103-6.
Battrum, D., 41-2.
Blackmore, J.W., 349-52.
Brandon, R.A., 333-6.
Brodeur, J.-M., 431-7, 761-5.
Brown, A., 359-60.
Buschang, P.H., 441-4.

C

Cadotte, L., 441-4.
Cantin, R.Y., 751-8.
Carlyle, T.D., 913-4.
Carvellas, P.P., 45-7.
Castaldi, C.R., 751-8.
Cavers, K., 912.
Chaney, S.A., 601-4.
Clark, D.B., 35-7.
Contandriopoulos, A.-P., 761-5.
Coradazzi J.L., 343-7.
Cotter, W.A., 601-4.
Crawford, R., 661-6, 892-7.
Cross, H.G., 751-8.

D

Daley, T.D., 825-8.
Dederich, D.N., 27-30.
Demers, M., 431-7, 761-5.
Demirjian, A., 441-4.
Donner, A., 689-91.

E

Eggert, F.M., 725-6.
Epstein, J.B., 413-9, 423-7.

F

Fortin, J.-L., 431-7.

G

Gaillard, J., 193-5.
Goettler, F., 731-4.
Grainger, R., 595-8.
Greenwood, L.F., 914.

H

Hadavi, F., 343-7.
Hardie, J., 355-7, 821-3.
Harper, R.P., 911-2.
Hoover, J.N., 177-80.

I

Ibbott, C.G., 515-7.
Ing, B., 447-9.
Iwasaki, L.R., 911.

J

Jackson, G.S., 728-30.
Jones, D.W., 163-73.
Jourda, G., 193-5.

K

Kestenberg, S.H., 277-86.
Kogon, D.M., 87-9, 93-9.
Kogon, S.L., 689-91.
Kryshtalskyj, B., 529-35.
Kuhn, C.C., 263-6.

L

Lachapelle, D., 761-5.
Landry, R.-G., 607-9, 611-5.
Lapeer, G.L., 113-4, 831-5.
Lavery, W.H., 515-7.
Leake, J.L., 743-7.
Lebire, A., 607-9., 611-5.
Lecavalier, D.R., 586-91.
Lee, A.J., 731-4.
Levine, N., 103-6.
Lepage, Y., 761-5.
L'Heureux, J.-B., 183-90, 843-50.

Listrom, R.D., 119-21, 675-8.
Locker, D., 271-4.
Lussier, J.-P., 431-7.

M

MacDonald, G., 813-5.
MacEntee, M.I., 671-3.
Main, J.H.P., 586-91.
Mason, D., 511-4.
McLachlan, K.R., 911.
Mock, D., 912.
Moore, C.E., 728-30.

N

Nasedkin, J.N., 248-55, 499-506.
Neuman, K., 259-60.
Nickel, J.C., 911.
Nikiforuk, G., 743-7.

O

Oles, R.D., 515-7.
Osuji, O.O., 743-7.

P

Packota, G.V., 177-80.
Pankratz, H.A., 898-9.
Parfitt, M., 913.
Payette, M., 183-90, 843-50.
Pharoah, M.J., 914.
Plante, R., 183-90, 843-50.
Price, C., 913.
Priddy, R.W., 35-7.
Pronych, P.M., 737-9.
Proulx, M., 607-9, 611-5.

R

Rocky, B.N., 817-9.
Roy, S., 607-9, 611-5.
Ruprecht, A., 683-5, 837-9.
Ruse, D.N., 903-8.

S

Sandhu, H., 595-8.
Schofield, I.D.F., 689-91.
Seth, V.K., 35-7.
Shortill, W.W., 339-41.
Sigal, M.J., 103-106.
Silverman, S., 413-9.
Simard, P.L., 431-7, 761-5.
Smith, D.C., 903-8.
Swanson, A.E., 523-5.
Symington, J.M., 119-21, 359-60, 675-8.

T

Tenenbaum H.C., 912-3.
Tessier, G., 761-5.
Tessier, J.-F., 607-9, 611-5.
Thomas, N.R., 912.
Tourtet, L.C., 193-5.
Tulip, J., 27-30.
Tunis, E.W., 915.

U

Umstadt, H., 837-9.

W

Wagner, H., 683-5.
Watson, P.A., 119-21, 359-60.
Woo, G.C., 447-9.
Wood, W., 911.

Y

Yanover, L., 595-8.
Young, E.R., 277-86, 511-4.

Z

Zakariasen, K.L., 27-30.
Zuccolin, D., 903-8.

SUBJECT INDEX

A

ACADEMY OF GENERAL DENTISTRY

Mar, 146.
President, Oct, 712.

ACTINOMYCOSIS

Actinomycotic osteomyelitis, Nov, 837-9.

ADMINISTRATION, SUBLINGUAL

Lorazepam sublingual for the nervous dental patient,
Jan, 41-2.

ADOLESCENCE

Comparison of dental caries and oral hygiene indices for
13-14 year old Quebec children between 1977 and
1984, Mar, 183-90.

ADULT

A survey of a program for the dental care of disabled
adults, Feb, 103-6.

ADVERTISING

Jul, 490.
Dentistry and the Law, Nov, 807-8.

AGED

Effect of a daily 0.2% chlorhexidine rinse on the health
of an institutionalized elderly population, Aug, 595-8.
Oral health status and treatment needs of elderly
patients in a teaching hospital in Saskatchewan, Mar,
177-80.

AIDS

Acquired immunodeficiency syndrome (AIDS) in an
elderly female psychiatric patient, Nov, 831-5.
AIDS Risk to Dental Personnel: A realistic approach,
Nov, 825-7.
American Academy of Oral Medicine, policy statement,
Dec, 000.
Booklet, Jul, 490.
Congresses, Montreal, Dec, 877.
Discrimination Case, Nov, 791.
FDA, Vaccine, Apr, 226.
Gloves, surgical, Aug, 569.
Jurisprudence, Jun 407-8.
National office, Dec, 881.
Oral management of individuals with human
immunodeficiency virus infection, Jun, 423-7.
Oral manifestations of human immunodeficiency virus
infection: recognition and diagnosis, Jun, 413-9.
U.S. Surgeon General, Jul, 490.

AIDS — DIAGNOSIS

Acquired immunodeficiency syndrome (AIDS) in an
elderly female psychiatric patient, Nov, 831-5.

AIDS — TRANSMISSION

AIDS Risk to Dental Personnel: A realistic approach,
Nov, 825-7.

ALBERTA DENTAL ASSOCIATION

Executive, Nov, 796.

THE ALBERTA HERITAGE FOUNDATION FOR MEDICAL RESEARCH

New research program, Jan, 11.

AMBULATORY CARE

A survey of a program for the dental care of disabled
adults, Feb, 103-6.

AMELOBLASTOMA

Peripheral Ameloblastoma: Report of a case, Jan, 35-7.

AMERICAN ACADEMY OF FORENSIC SCIENCES

Dr. George Burgman, Jun, 404.

AMERICAN ACADEMY OF ORAL MEDICINE

Dec, 881.

AMERICAN DENTAL ASSOCIATION

Mar, 146.
Commission on the young professional, Jan, 12.

ANALGESICS

A single dose study of a new analgesic, Ciramadol, Sep,
675-8.

ANESTHESIA, LOCAL

Local anesthetics and sulphite sensitivity, May, 348-52.

ANTIBIOTIC PROPHYLAXIS

Use of prophylactic antibiotics in oral surgery, July,
529-35.
Report on prosthetic joints, antibiotic prophylaxis and
dental treatment, May, 355-7.

ANXIETY

Lorazepam sublingual for the nervous dental patient,
Jan, 41-2.
Pain and helplessness in the anxious dental patient: A
multifactorial approach, Apr, 263-6.

APPOINTMENTS

Dr. P. Ralph Crawford, CDA Journal Editor, Jan, 7.
Dr. Michael Eggert, Jan, 16.
Dr. Ron Jordan, U Manitoba Dean, Jul, 475.
Dr. So Wah Leung, Order of Canada, May, 322.
Dr. Norman Levine, May, 322.
Medical Research Council, Feb, 75.
Dr. W. Robert Patrick, Mar, 149.
Dr. Paul Robertson, UBC Dean, Sep, 644.
Dr. H.J. Stockton, Aug, 569.
Dr. William F. Watten, ADA Editor, Jan, 10.

APPOINTMENTS AND SCHEDULES

Jul, 474.

ARTHROGRAPHY

The diagnostic contribution of temporomandibular joint
arthrography [abstract], Dec, 914.

ASSOCIATION OF CANADIAN FACULTIES OF DENTISTRY

Apr, 217.
Summer teaching & management institutes, Dec, 873.

ASTHMA

Local anesthetics and sulphite sensitivity, May, 348-52.

AUDIO-VISUAL AIDS

Magnification devices for the presbyopic dentist, June,
447-9.

AWARDS AND PRIZES

Dr. Edward Allison, Sep, 646.
Dr. Ernest R. Ambrose, Aug, 569.
Dr. Lewis Archibald, Feb, 78.
CDFB Borden, Nov, 793.
Dr. John Christie, Sep, 646.
Johnson & Johnson preventive dentistry award, Aug,
561.
Dr. Derek Jones, May, 322.
Dr. Ron Jordan, Jun 404.
Dr. Yosh Kamachi, Sep, 646.
Dr. N.A. Mancini, Sep, 641.
Medical Research Council program grant, Nov, 786.
Dr. Frank Shamy, Feb, 74.
Dr. Gilbert E. Utas, Apr, 226.
Dr. Donald Woodside, Mar, 154.

B

BAHAMAS

Apr, 224.

BEAGRIE, DR. GEORGE

Retires, Sep, 643.

BENZODIAZEPINES

Triazolam: An oral sedative for the dental practitioner,
July, 511-4.

BIOCOMPATIBLE MATERIALS

The Future of Biomaterials, Mar, 163-73.

BITE FORCE

Biomechanical significance of muscle size and
relationships to teeth and joints [abstract], Dec, 911.

BROOKS, DR. CLARENCE

Aug, 567-8.

BURNING MOUTH SYNDROME

Resource Centre de documentation, Dec, 880.

C

CANADA

Clinical dental research in Canada: A clinician's
perspective, Sep, 671-3.

CANADIAN ACADEMY OF ENDODONTICS

Executive, Apr, 226.

CANADIAN ACADEMY OF PROSTHODONTICS

Executive, Nov, 796.

CANADIAN AIDS ASSOCIATION

Dec, 881.

CANADIAN ASSOCIATION OF ORTHODONTICS

President, Mar, 154.

CANADIAN DENTAL ASSOCIATION

Board of Governors
Anesthesia Policy, Dec, 871.
Approves radiation guidelines, Jun, 387-8.
Tobacco Policy, Jan, 11.

Committee for Consumer Products recognition
Chemotherapeutic products for the control of
supragingival dental plaque and gingivitis, Oct, 725-6.

Committee on Dental Specialties, members, Nov, 793-4.

Executive Council, Jan, 8.

Executive Director

Report on 1988 Interim Meeting and Audited Financial
Report, Jun, 389-96.
Report on 1988 Annual Meeting of Board of
Governors, Nov, 787-91.

Guidelines for use of chemotherapeutic products
Chemotherapeutic products for the control of
supragingival dental plaque and gingivitis, Oct, 725-6.

Health Care Council

Statement on joint prostheses, Jun, 388.

Management Committee, Apr, 216.

President, Sep, 639-40.

Professional Resources Utilization Committee, Aug,
561.

Taxation Committee

Feb, 72.
Customs Postal System, Aug, 559-60.
Tax Return, White Paper, Jun, 386.

Third Party Dental Plans Committee

Treatment Plans, Apr, 218-9.

CANADIAN DENTAL ASSOCIATION CONVENTION

Alberta Dental Association, Feb, 76-7; Mar, 151.
Chairman's message, Aug, 565.
Edmonton, Jan, 14-15.
Highlights, Jun, 397-400; Jul, 477-89.
Post-convention report, Nov, 783-5.
Scientific program, Apr, 221; May, 316-8.
Vancouver, General Chairman, Dr. Michel Jahjah, Sep,
645.

SUBJECT INDEX

CANADIAN DENTAL ASSOCIATION JOURNAL

Dr. Pierre C. Desautels, Feb, 79.

CANADIAN FORCES BASE BORDEN

Graduation ceremonies, Nov, 792-3.

CANADIAN FUND FOR DENTAL EDUCATION

Board of Trustees, Feb, 71.

Ted Ramage, new chairman, Oct, 711.

Summer teaching & management institutes, Dec, 873.

CANADIAN PENSION CONFERENCE

Capitation, Feb, 72.

CANADIAN PUBLIC HEALTH ASSOCIATION

AIDS, Feb, 74.

AIDS Campaign, Jan 16.

CAPITATION FEE

Capitation : A personal experience, Nov, 799-803.

CEPHALOMETRY

Analyzing the mechanics of function: A new use for cephalometrics [abstract], Dec, 911.

CHILD

Caracteristiques epidemiologiques de la carie dentaire chez les ecoliers quebecois de 7-8-11-12 ans en 1983-1984, Nov, 843-50.

CHINA

Canadians Pioneering Dentistry in China, Dec, 892-5.

CHLORHEXIDINE

Chemotherapeutic products for the control of supragingival dental plaque and gingivitis, Oct, 725-6.
Effect of a daily 0.2% chlorhexidine rinse on the health of an institutionalized elderly population, Aug, 595-8.

CIRAMADOL

A single dose study of a new analgesic, Ciramadol, Sep, 675-8.

COLLEGE OF DENTAL SURGEONS OF B.C.

Practice Profiling, Nov, 817-9.

President, Sep, 648.

COMMUNICABLE DISEASES

CDA recommendations, Jun, 383-6.

COMMUNICATION

Effective communication skills: A key to practice building, May, 333-6.

COMPARATIVE STUDY

The case for fluoridation: A comparison between Toronto and Montreal, Oct, 731-4.

Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children between 1977 and 1984, Mar, 183-90.

Long-term comparison of two surgical flap designs for third molar surgery on the health of the periodontal tissue of the second molar tooth, Sep, 689-91.

COMPOSITE RESINS

Porcelain posterior resin-bonded restorations: Current perspectives on esthetic restorative dentistry: Part II, Jul, 499-506.

COMPUTERS

Computers in Dentistry — Part One: CAD/CAM The computer moves chairside, Sep, 661-3.

Computers in Dentistry — Part Two: Francois Duret — a man with vision, Sep, 664.

Computers in Dentistry — Part Three: The computer gives new vision — literally, Sep, 665.

Computers in Dentistry — Part Four: Bytes'n Bites, Sep, 666.

Dental Management System Software, Feb, 93-9.

Resource Centre de documentation, Sep, 656.

Understanding Computer Hardware, Feb, 87-9.

COMPUTER GRAPHICS

Cosmetic imaging: A look into the future — now!, Apr, 259-60.

COMPUTER SYSTEMS

Computers in Dentistry — Part Three: The computer gives new vision — literally, Sep, 665.

Computers in Dentistry — Part Four: Bytes'n Bites, Sep, 666.

CONGRESSES

The Carl O. Boucher Prosthodontic Conference, Apr, 225.

Dental Films and Video Festival, Oct, 716.

Geriatric Symposium, Aug, 581-4.

Maxillofacial Radiology, Jan, 17.

The Sports Dentistry Symposium, Apr, 217.

CRANIO-MANDIBULAR FUNCTION & DISFUNCTION — SYMPOSIUM

Royal College of Dentists of Canada's K.J. Paynter Memorial Symposium, Dec, 910-5.

CURETTAGE

Effect of root curettage and sodium hypochlorite treatment on pedicle flap coverage of localized recession, Jul, 515-7.

D

DELIVERY OF HEALTH CARE

Practice Profiling, Nov, 817-9.

DENTAL AMALGAM

Effect of manipulative variables on porosity and microleakage of amalgam, May 343-7.

DENTAL AWARENESS PROGRAM UPDATE

Jan, 19; Feb, 80; Mar, 141; Mar, 155; Apr, 225; May, 324; Jun, 401; Jul, 490; Sep, 649; Nov, 797; Dec, 879.

DENTAL CARE

Dentistry Behind the Walls, Nov, 813-5.

Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, June, 431-7.

Oral health status and treatment needs of elderly patients in a teaching hospital in Saskatchewan, Mar, 177-80.

Oral management of individuals with human immunodeficiency virus infection, Jun, 423-7.

Oral manifestations of human immunodeficiency virus infection: recognition and diagnosis, Jun, 413-9.

Pain and helplessness in the anxious dental patient: A multifactorial approach, Apr, 263-6.

Report on prosthetic joints, antibiotic prophylaxis and dental treatment, May, 355-7.

DENTAL CARE FOR HANDICAPPED

A survey of a program for the dental care of disabled adults, Feb, 103-6.

DENTAL CARIES

Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children between 1977 and 1984, Mar, 183-90.

DENTAL CARIES-OCCURRENCE

Caracteristiques epidemiologiques de la carie dentaire chez les ecoliers quebecois de 7-8-11-12 ans en 1983-1984, Nov, 843-50.

DENTAL CARIES-PREVENTION AND CONTROL

Nov, 795.

DENTAL CLINICS

A survey of a program for the dental care of disabled adults, Feb, 103-6.

DENTAL HEALTH SERVICES

Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, Jun, 431-7.

A survey of a program for the dental care of disabled adults, Feb, 103-6.

DENTAL HEALTH SURVEYS

Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, Jun, 431-7.
The symptom iceberg in dentistry: Treatment seeking in relation to oral and facial pain, Apr, 271-4.

DENTAL IMPLANTATION

Regulations, Jul, 475-6; Sep, 647.

DENTAL IMPLANTATION, ENDOSSEOUS

Treatment of the edentulous maxillary arch using osseointegrated implants supporting a fixed-removal prosthesis, Feb, 119-121.

Treatment of the partially edentulous maxillary arch assisted by osseointegrated implants and magnets, May, 359-60.

DENTAL INDUSTRY ASSOCIATION OF CANADA

President, Dec, 881.

DENTAL LEAKAGE

Effect of manipulative variables on porosity and microleakage of amalgam, May 343-7.

DENTAL MATERIALS

Federal Sales Tax, Aug, 559-60.

Resource Centre de documentation, Mar, 156.

DENTAL OCCLUSION

Multidisciplinary teamwork approach to occlusion related temporomandibular joint problems [abstract], Dec, 913-4.

DENTAL PLAQUE — DRUG THERAPY

Chemotherapeutic products for the control of supragingival dental plaque and gingivitis, Oct, 725-6.

DENTAL PORCELAIN

Current perspectives on esthetic restorative dentistry: Part I Porcelain Laminates, Apr, 248-55.

Porcelain posterior resin-bonded restorations: Current perspectives on esthetic restorative dentistry: Part II, Jul, 499-506.

DENTAL PROSTHESIS

Computers in Dentistry — Part One: CAD/CAM The computer moves chairside, Sep, 661-3.

Computers in Dentistry — Part Two: Francois Duret — a man with vision, Sep, 664.

DENTAL PROSTHESIS, DESIGN

Treatment of the edentulous maxillary arch using osseointegrated implants supporting a fixed-removal prosthesis, Feb, 119-121.

Treatment of the partially edentulous maxillary arch assisted by osseointegrated implants and magnets, May, 359-60.

DENTAL RESTORATIONS, PERMANENT

Current perspectives on esthetic restorative dentistry: Part I Porcelain Laminates, Apr, 248-55.

Effect of manipulative variables on porosity and microleakage of amalgam, May 343-7.

Porcelain posterior resin-bonded restorations: Current perspectives on esthetic restorative dentistry: Part II, Jul, 499-506.

DENTAL STAFF

AIDS risk to dental personnel: A realistic approach, Nov, 825-7.

Why isn't the Hepatitis B vaccine being used?, Nov, 821-3.

DENTAL VENEERS

Current perspectives on esthetic restorative dentistry: Part I porcelain laminates, Apr, 248-55.

DENTIFRICES

Chemotherapeutic products for the control of supragingival dental plaque and gingivitis, Oct, 725-6.

SUBJECT INDEX

DENTISTRY — VETERINARY

Dec, 875-6.

DENTIST-PATIENT RELATIONS

Mar, 147-9.

DENTISTS

AIDS risk to dental personnel: A realistic approach, Nov, 825-7.

Magnification devices for the presbyopic dentist, Jun, 447-9.

Why isn't the Hepatitis B vaccine being used?, Nov, 821-3.

DENTISTS, POLITICS

Jan, 13.

DENTSPLY

Student Clinician Program, Nov, 786.

DENTURE, PARTIAL

De l'original en P.A.P. le chassis amorti, Mar, 193-5.

DENTURE IDENTIFICATION MARKING

A conservative cosmetic identification concept for prosthetic appliances, Aug, 601-4.

DEVELOPING COUNTRIES

Canadians in Third World Countries: A Caribbean Experience, Dec, 896-7.

DIAGNOSIS, COMPUTER ASSISTED

Computers in Dentistry — Part One: CAD/CAM
The computer moves chairside, Sep, 661-3.

Computers in Dentistry — Part Two: Francois Duret — a man with vision, Sep, 664.

DMF INDEX

The case for fluoridation: A comparison between Toronto and Montreal, Oct, 731-4.

E

EDITORIAL

CDA Conventions, Jul, 469.

Computers, Feb, 69.

Dental Awareness Program, Mar, 141.

Dental Care, Oct, 709.

Esthetic Dentistry, Apr, 213.

Geriatric Dentistry, Aug, 557.

Infection Control, Jun, 381.

International Responsibilities, Dec, 869.

New Editor, Jan, 5.

New Zealand Dental Act, May, 309.

Prosthetic Dentistry, Sep, 637.

Quality Assurance, Dental Equipment, Nov, 781.

EDUCATION, DENTAL

Continuing courses, Aug, 575-9.

ELECTROANALGESIA

The effect on fatigue and T.E.N.S. on the E.M.G. mean power frequency [abstract], Dec, 912.

ELECTRONARCOSIS

May, 318.

EMPLOYMENT

Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, June, 431-7.

ENDOCARDITIS, BACTERIAL

Report on prosthetic joints, antibiotic prophylaxis and dental treatment, May, 355-7.

EPSTEIN, DR JOEL B.

Dec, 881.

ESTHETICS, DENTAL

Cosmetic imaging: A look into the future — now!, Apr, 259-60.

Current perspectives on esthetic restorative dentistry:

Part I porcelain laminates, Apr, 248-55.

Porcelain posterior resin-bonded restorations: Current perspectives on esthetic restorative dentistry: Part II, July, 499-506.

ETHICS, DENTAL

Resource Centre de documentation, Nov, 806.

ETHIOPIA

A Canadian Experience in Ethiopia, Dec, 898-9.

F

FACIAL BONES

Quelques donnees cliniques sur le syndrome trichodento-osseux, Jan, 45-7.

FACIAL PAIN — DIAGNOSIS

Differential diagnosis of facial pain [abstract], Dec, 913.

The symptom iceberg in dentistry: Treatment seeking in relation to oral and facial pain, Apr, 271-4.

FEDERATION DENTAIRE INTERNATIONALE

Dr. George Beagrie, Jun, 404.

Congresses, Argentina, Mar, 143-5; Washington, Mar, 146.

Preventive Dentistry Award, Aug, 561.

Structure and Organization, Aug, 562.

Technical Report, Sep, 648.

FEES, DENTAL

Capitation: A personal experience, Nov, 799-803.

Practice Profiling, Nov, 817-9.

FLUORIDATION

The case for fluoridation: A comparison between Toronto and Montreal, Oct, 731-4.

FOOD PRESERVATIVES

Local anesthetics and sulphite sensitivity, May, 348-52.

FORENSIC DENTISTRY

Aug, 565; Oct, 714.

FREEDOM

Dentistry and the Law, Nov, 807-8.

FRENCH-CANADIANS

Permanent mesiodistal tooth size of French-Canadians, Jun, 441-4.

G

GALLUP POLL

Nov, 797.

GERIATRIC DENTISTRY

Editorial, Aug 557.

Resource Centre de documentation, Aug, 574.

Symposium in Winnipeg, Mar, 149.

Times are changing — Are you ready?, Aug, 581-4.

GIANT CELL TUMORS-THERAPY, SURGERY

Conservative treatment of central giant cell granuloma of the mandible: Report of a case with a 10-year follow-up, Jul, 523-5.

GINGIVAL DISEASES

Peripheral ameloblastoma: Report of a case, Jan, 35-7.

GINGIVAL EXUDATE

Liquide creviculaire — Partie I: Signification clinique, Aug, 607-9.

Liquide creviculaire — Partie II: La collection, Aug, 611-5.

GINGIVAL NEOPLASM

Peripheral ameloblastoma: Report of a case, Jan, 35-7.

GINGIVAL RECESSON

Effect of root curettage and sodium hypochlorite treatment on pedicle flap coverage of localized recession, July, 515-7.

GINGIVITIS — DIAGNOSIS

Liquide creviculaire — Partie I: Signification clinique, Aug, 607-9.

Liquide creviculaire — Partie II: La collection, Aug, 611-5.

GINGIVITIS — DRUG THERAPY

Chemotherapeutic products for the control of supragingival dental plaque and gingivitis, Oct, 725-6.

GLASS IONOMER CEMENTS

Some characteristics of glass ionomer cement lining materials, Dec, 000.

GREAT LAKES SOCIETY OF ORTHODONTISTS

President, Mar, 154.

H

HEALTH CARE

Ontario Ministry of Health, Dec, 874.

HEALTH PLANNING

Report on prosthetic joints, antibiotic prophylaxis and dental treatment, May, 355-7.

HEALTH SURVEYS

Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children between 1977 and 1984, Mar, 183-90.

Academy of General Dentistry, Mar, 146.

HEPATITIS B

Nov, 795; Dec, 872.

Resource Centre de documentation, Jun, 406.

Why isn't the Hepatitis B vaccine being used?, Nov, 821-3.

HONORS

Dr. Roberta Dundas, Jan, 16.

Dr. Arlington Dungy, Apr, 226.

Dr. Arthur H. Ervin, Feb, 78.

Mr. Brian Henderson, Jan, 16-7.

Dr. Douglas Yeo, Feb, 73.

HOSPITALS, TEACHING

Oral health status and treatment needs of elderly patients in a teaching hospital in Saskatchewan, Mar, 177-80.

HYPERSENSITIVITY

Local anesthetics and sulphite sensitivity, May, 348-52.

I

INCISOR

Permanent mesiodistal tooth size of French-Canadians, Jun, 441-4.

INFECTION CONTROL

Academy of General Dentistry, Mar, 146.

CDA Conference, Jan, 8-9; May, 311-12.

CDA recommendations, Jan, 8-9; Jun, 383-6.

Resource Centre de documentation, Jun, 406.

The US Occupational Safety and Health Administration, Jan, 10.

Why isn't the Hepatitis B vaccine being used?, Nov, 821-3.

INJECTIONS, SUBCUTANEOUS

Local anesthetics and sulphite sensitivity, May, 348-52.

INSTITUTIONALIZATION

Effect of a daily 0.2% chlorhexidine rinse on the health of an institutionalized elderly population, Aug, 595-8.

SUBJECT INDEX

INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH

Congresses, Jul, 490.

THE INTERNATIONAL ASSOCIATION OF GERODONTOLOGY

Congresses, May, 322.

J

JAW, EDENTULOUS

Actinomycotic osteomyelitis, Nov, 837-9.

Mandibular dysfunction and prosthodontics [abstract], Dec, 914.

Treatment of the edentulous maxillary arch using osseointegrated implants supporting a fixed-removal prosthesis, Feb, 119-121.

JAW, EDENTULOUS, PARTIALLY

Treatment of the partially edentulous maxillary arch assisted by osseointegrated implants and magnets, May, 359-60.

JOHNSON & JOHNSON

Preventive dentistry award, Aug, 561.

JOINT PROSTHESIS

CDA, Statement on joint prostheses, Jun, 388.

Report on prosthetic joints, antibiotic prophylaxis and dental treatment, May, 355-7.

L

LASERS

Lasers in Dentistry, Jan, 27-30.

Resource Centre de documentation, Jan, 18.

LETTERS

CDA Efforts, Bizri, M., Jul, 497.

Clinical Use of Triazolam, Paton D.M., Dec, 882.

Collaboration, Yazdani, A., Jul, 497.

Continuing Education, Zucchiatti, J.D., Sep, 659.

Customs Postal System, Viau, R., Dec, 882.

Cyclamates, Dale, R.M., Oct, 722.

Cyclamates: Response, Eggert, F.M., Oct, 722.

Cyclamates: Response, Health Protection Branch, Oct, 722.

Cyclamates: Response, Manufacturer, Oct, 722.

Dental Care for Seniors, Hicks, T.W., Dec, 883.

Dental Care for Seniors, Humphreys, P., Mar, 157.

Editorial Comment, Gordon, M., Oct, 723.

Future of Biomaterials, Sykor, O., Jul, 497.

HIV & AIDS Research, Gornitsky, M., Sep, 659.

Minister commends CDA for its cooperation, Epp, J., Mar, 157.

Porcelain Laminates, Boksma, Leendert, Sep, 658.

Porcelain Laminates: Response, Nasedkin, J.N., Sep, 658-9.

Research Notice, Rees, R., Jul, 497.

Response: AIDS, HIV Research, Epstein, J.B., Dec, 883.

Response: Book Review, dos Santos, J., Jul, 497.

Response: Customs Postal System, Hicks, R.N., Dec, 882.

Response: System Software, Kogon, D., Jul, 497.

Wisdom Tooth Study, Lazare, M., Mar, 157.

LORAZEPAM

Lorazepam sublingual for the nervous dental patient, Jan, 41-2.

M

MACLEAN, DR. HECTOR

Nov, 794.

MAGNETIC RESONANCE IMAGING

Magnetic resonance imaging [abstract], Dec, 913.

MAGNETICS

Treatment of the partially edentulous maxillary arch assisted by osseointegrated implants and magnets, May, 359-60.

MANCINI, DR. N.A.

Sep, 641.

MANDIBLE

Conservative treatment of central giant cell granuloma of the mandible: Report of a case with a 10-year follow-up, Jul, 523-5.

MANITOBA DENTAL ASSOCIATION

President, Jun, 404.

MANPOWER

Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, Jun, 431-7.

MARKETING OF HEALTH SERVICES

Effective Communication Skills: A Key to Practice Building, May, 333-6.

MASSETER MUSCLE

Biomechanical significance of muscle size and relationships to teeth and joints [abstract], Dec, 911.

MASTICATORY MUSCLES

Biomechanical significance of muscle size and relationships to teeth and joints [abstract], Dec, 911.

MOLAR

Impaction of the first permanent molar: Two case reports, Feb, 113-4.

Long-term comparison of two surgical flap designs for third molar surgery on the health of the periodontal tissue of the second molar tooth, Sep, 689-91.

Permanent mesiodistal tooth size of French-Canadians, Jun, 441-4.

MOLAR, THIRD

Long-term comparison of two surgical flap designs for third molar surgery on the health of the periodontal tissue of the second molar tooth, Sep, 689-91.

MONTREAL

The case for fluoridation: A comparison between Toronto and Montreal, Oct, 731-4.

MONTREAL DENTAL CLUB

President, Nov, 796.

MORAN, DR. RODERICK L.

Royal College of Dentists of Canada's K.J. Paynter Memorial Symposium, Dec, 910-5.

MOUNT ROYAL DENTAL SOCIETY

President, Aug, 569.

MOUTH, ARTIFICIAL

Jul, 490.

MOUTH DISEASES

Oral management of individuals with human immunodeficiency virus infection, Jun, 423-7.

Oral manifestations of human immunodeficiency virus infection: recognition and diagnosis, Jun, 413-9.

Smokeless tobacco and oral disease: A review, Aug, 586-91.

MOUTH NEOPLASMS

Resource Centre de documentation, Jul, 496.

MOUTHWASHES

Chemotherapeutic products for the control of supragingival dental plaque and gingivitis, Oct, 725-6.

N

NATIONAL DENTAL HEALTH POSTER CONTEST

Aug 563.

NEW BRUNSWICK DENTAL SOCIETY

President, Sep, 648.

NIEDERMAYER, DR. JACK

Installed as CDA President, Sep, 639-40.

NITROUS OXIDE

Potential problems associated with occupational exposure to nitrous oxide, Apr, 277-86.

NOVA SCOTIA DENTAL ASSOCIATION

President, Oct, 716.

O

OBITUARIES

Allard, D., Jul, 543.

Balderson, R.G., Nov, 854.

Berry, F.K., Dec, 929.

Bilkey, E.R., Mar, 150.

Bird, R.R., May, 368.

Blanshard, G.A., Feb, 75.

Boiteau, G., Jul, 543.

Box, E., Aug, 563.

Carroll, R., May, 368.

Chalmers, J.L., Jul, 543.

Charest, A., Jan, 13.

Clark, H.E., Jul, 543.

Condon, J.F., Apr, 229.

Cooke, T.J.S., Jul, 543.

Cougle, K., Feb, 75.

David, R., Jan, 13.

Downton, E., Apr, 229.

Eaton, D.C., Dec, 929.

Eckenfelder, C., Jul, 543.

Edward, F.A., May, 368.

L'Esperance, J.-C., Jul, 543.

Gagne, C., Jan, 13.

Godfrey, N.T., Aug, 563.

Green, L.N., Feb, 75.

Hardin, S.H., Feb, 75.

Harper, S., Apr, 299.

Hauck, C.C., Nov, 854.

Hyde, R.G., Dec, 929.

Ignace, M.M., Jul, 543.

Jeffries, D.P., Jul, 543.

Kilgour, J.F., Aug, 563.

Lalonde, F.C., Aug, 563.

Larue, P., Feb, 75.

Laskowski, J.E., Mar, 150.

Leman, A.C., Nov, 854.

Lessard, P., Jan, 13.

Losier, G., Jan, 13.

Lykos, Tom, Mar, 154.

MacLean, H., Nov, 794.

MacLeod, A.A., Jan, 13.

Malone, E.M., May, 368.

Meharry, R.A., Feb, 75.

Mendel, F., Jul, 543.

Michail, O., Jul, 543.

Michaud, F., Jan, 13.

Millar, I.A.L., Mar, 150.

Mintz, A.B., Mar, 150.

Moore, W.R., Jan, 13.

Olsen, G.M., May, 368.

Pearson, H.H., Jul, 543.

Pottinger, E.N.M., Jul, 543.

Power, J.G., Mar, 150.

Purdy, H.L., Dec, 929.

Rice, R.W., Mar, 150.

Rogers, G.L., Oct, 723.

Roy, M.R.S., Oct, 723.

Ryan, J.G., Nov, 854.

Samson, J., Aug, 563.

Saunders, D.F., Mar, 150.

Shaffner, W.J., Oct, 723.

Simmons, H.E., Apr, 299.

Somerville, D.A., Jan, 13.

Sproule, J.E., Mar, 150.

Starr, R.M., Jul, 543.

Sybersma, D.T., May, 368.

Tackaberry, W.J., Apr, 229.

Ustohal, M., Nov, 854.

Vincelli, J., Apr, 229.

Wagle, S.G., Oct, 723.

Waid, W.C., Dec, 929.

Wall, B.J., Aug, 563.

Zack, H., Aug, 563.

SUBJECT INDEX

OCCUPATIONAL DISEASES

Potential problems associated with occupational exposure to nitrous oxide, Apr, 277-86.

ODONTOGENIC TUMORS

Peripheral ameloblastoma: Report of a case, Jan, 35-7.

OLYMPIC GAMES

Dental Service, Aug, 564.

ONTARIO DENTAL ASSOCIATION

Board of Governors, Feb, 75.
President, Jul, 473.
Dental Health Awareness Award, Oct, 715.

ORAL HEALTH

Effect of a daily 0.2% chlorhexidine rinse on the health of an institutionalized elderly population, Aug, 595-8.
Oral health status and treatment needs of elderly patients in a teaching hospital in Saskatchewan, Mar, 177-80.
Smokeless tobacco and oral disease: A review, Aug, 586-91.

ORAL HYGIENE

Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children between 1977 and 1984, Mar, 183-90.

ORAL MANIFESTATIONS

Oral management of individuals with human immunodeficiency virus infection, June, 423-7.
Oral manifestations of human immunodeficiency virus infection: recognition and diagnosis, June, 413-9.

OSTEOMYELITIS-THERAPY

Actinomycotic osteomyelitis, Nov, 837-9.

P

PACIFIC COAST SOCIETY OF PROSTHODONTICS

President, Oct, 716.

PAIN

Pain and helplessness in the anxious dental patient: A multifactorial approach, Apr, 263-6.
The symptom iceberg in dentistry: Treatment seeking in relation to oral and facial pain, Apr, 271-4.

PAIN, POSTOPERATIVE

A single dose study of a new analgesic, Ciramadol, Sep, 675-8.

PATIENTS

Pain and helplessness in the anxious dental patient: A multifactorial approach, Apr, 263-6.

PERIAPICAL TISSUE

Extrusion of endodontic filling material into the inferior alveolar canal, Sep, 683-5.

PERIODONTAL DISEASES, DIAGNOSIS

Liquide crevculaire — Partie I: Signification clinique, Aug, 607-9.
Liquide crevculaire — Partie II: La collection, Aug, 611-5.

PHARMACEUTICAL MANUFACTURERS' ASSOCIATION

Research and development, Dec, 872.

PHOTOGRAPHY

Computers in Dentistry — Part Three: The computer gives new vision — literally, Sep, 665.

PHYSICAL THERAPY

Indications and contraindications for physiotherapy [abstract], Dec, 913.

PIT SEALANTS

Pit and fissure sealants: One more time, Oct, 728-30.
Resource Centre de documentation, Oct, 721.

PRACTICE MANAGEMENT, DENTAL

Bank Shares, Jun, 405.
Dental Management System Software, Feb, 93-9.
Effective Communication Skills: A Key to Practice Building, May, 333-6.
Mutual fund, 651-2.
Resource Centre de documentation, Feb, 85.
A Retirement Scenario, May, 339-41.
Stocks and Bonds, May, 315.

PREMEDICATION

Report on prosthetic joints, antibiotic prophylaxis and dental treatment, May, 355-7.

PRESBYOPIA

Magnification devices for the presbyopic dentist, Jun, 447-9.

PRESCRIPTION, DRUG

Jul, 474.

PRESIDENT'S COLUMN

Annual Board Highlights, Dec, 870.
CDA Membership, Oct, 710.
Continuing Education, Jun, 382.
Editorial Excellence, Jan, 6.
The Future of Dentistry, Apr, 214.
Goals, Sep, 638.
Membership, Feb, 70.
National Health, May, 310.
Organized Dentistry, Jul, 470.
Professionalism, Nov, 782.
Reflections, Aug, 558.
Teamwork, Mar, 142.

PREVENTIVE DENTISTRY

Johnson & Johnson Award, Aug, 561.

PRISONERS

Dentistry Behind the Walls, Nov, 813-5.

PRISONS

Dentistry Behind the Walls, Nov, 813-5.

PTERYGOID MUSCLES

Biomechanical significance of muscle size and relationships to teeth and joints [abstract], Dec, 911.

Q

QUEBEC

Caracteristiques epidemiologiques de la carie dentaire chez les ecoliers quebecois de 7-8-11-12 ans en 1983-1984, Nov, 843-50.
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children between 1977 and 1984, Mar, 183-90.
Increase in Quebec dental manpower and demand for dental care from 1971 to 1985, Jun, 431-7.

R

RADIOGRAPHY, DENTAL

CDA, Board of Governors — radiation guidelines, Jun, 387-8.
Impaction of the first permanent molar: Two case reports, Feb, 113-4.

RESEARCH

Clinical dental research in Canada: A clinician's perspective, Sep, 671-3.
The Future of Biomaterials, Mar, 163-73.

RETIREMENT

A Retirement Scenario, May 339-41.
Dr. Thomas McCarthy, Oct, 713.
Mrs. Doris Pritchard, Oct, 714.

RIZK, DR. DAVID

Capitation: A personal experience, Nov, 799-803.

ROACH, DR. KEVIN L.

Sep, 640.

ROOT CANAL FILLING MATERIAL

Extrusion of endodontic filling material into the inferior alveolar canal, Sep, 683-5.

ROYAL COLLEGE OF DENTISTS OF CANADA

Elections 1987, May, 313-4.

S

SALIVA

Oct, 716.

SASKATCHEWAN

Oral health status and treatment needs of elderly patients in a teaching hospital in Saskatchewan, Mar, 177-80.

SASKATOON DENTAL SOCIETY

President, Jan, 16.

SODIUM HYPOCHLORITE

Effect of root curettage and sodium hypochlorite treatment on pedicle flap coverage of localized recession, Jul, 515-7.

SPEECH DISORDERS

Apr, 220.

STUDENTS, DENTAL

A survey of a program for the dental care of disabled adults, Feb, 103-6.

SULPHITES

Local anesthetics and sulphite sensitivity, May 348-52.

SURGERY, ORAL

Use of prophylactic antibiotics in oral surgery, Jul, 529-35.
Long-term comparison of two surgical flap designs for third molar surgery on the health of the periodontal tissue of the second molar tooth, Sep, 689-91.

T

TAXES

CDA Taxation Seminar — Vancouver, Oct, 712.

TEMPOROMANDIBULAR JOINT

The diagnostic contribution of temporomandibular joint arthrography [abstract], Dec, 914.
Multidisciplinary teamwork approach to occlusion related temporomandibular joint problems [abstract], Dec, 913-4.
Conservative management of temporomandibular disorders [abstract], Dec, 912-3.
Mechanics related to osteodegenerative change in the human TMJ [abstract], Dec, 911.

TEMPOROMANDIBULAR JOINT — SURGERY

Functional response of the temporomandibular joint to surgical orthodontics [abstract], Dec, 911-2.
Surgical considerations of temporomandibular joint disorder [abstract], Dec, 915.

TISSUE DONORS

CDA, Apr, 215-6.

TOBACCO

CDA policy, Jan 11.
Law passed, Sep, 642.

TOBACCO, SMOKELESS

Smokeless tobacco and oral disease: A review, Aug, 586-91.

SUBJECT INDEX • BOOK REVIEW INDEX

TOOTH, IMPACTED

Impaction of the first permanent molar: Two case reports, Feb, 113-4.

TOOTH, UNERUPTED

Actinomycotic osteomyelitis, Nov, 837-9.

TOOTH ABNORMALITIES

Quelques donnees cliniques sur le syndrome Tricho-dento-osseux, Jan, 45-7.

TOOTH FRACTURES

Resource Centre de documentation, May, 330.

TOOTH MOVEMENT, MINOR

Extrusion of endodontic filling material into the inferior alveolar canal, Sep, 683-5.

TOOTH ROOT

Effect of root curettage and sodium hypochlorite treatment on pedicle flap coverage of localized recession, Jul, 515-7.

Extrusion of endodontic filling material into the inferior alveolar canal, Sep, 683-5.

TOOTH — TRANSPLANTATION

Oct, 716.

TORONTO

The case for fluoridation: A comparison between Toronto and Montreal, Oct, 731-4.

TRIAZOLAM

Triazolam: An oral sedative for the dental practitioner, Jul, 511-4.

TRICHO-DENTO-OSSEOUS SYNDROME

Quelques donnees cliniques sur le syndrome tricho-dento-osseux, Jan, 45-7.

U

UNIVERSITY OF ALBERTA

New research programme, Jan, 11.

UNIVERSITY OF MANITOBA-FACULTY OF DENTISTRY

Receives funds for renovations, Oct, 713.

UNIVERSITY OF SASKATCHEWAN-FACULTY OF DENTISTRY

Survey, Apr, 218.

UNIVERSITY OF TORONTO-FACULTY OF DENTISTRY

Chairman, Jul, 490.

V

VACCINATION

Nov, 795; Dec, 873.

Why isn't the Hepatitis B vaccine being used?, Nov, 821-3.

VIDEO RECORDING (VIDEO IMAGING SYSTEM)

Computers in Dentistry — Part Three: The computer gives new vision — literally, Sep, 665.

Computers in Dentistry — Part Four: Bytes'n Bites, Sep, 666.

Cosmetic imaging: A look into the future — now!, Apr, 259-60.

W

WORLD HEALTH ORGANIZATION

Jul, 474.

Y

YUKON DENTAL ASSOCIATION

Dec, 877.

BOOK REVIEW INDEX

A

Allan D.N. and Foreman P.C., Crown and Bridge Prosthodontics: An Illustrated Handbook, reviewed by D.R. Gratton and D.L. Hussey, May, 827-8.

B

Bandlish, L.K., Colour Atlas of a New Concept of Enamel Caries, reviewed by T.J. Harrop, Sep, 653.

Barr C.E. and Marder M.Z., AIDS — A Guide for Dental Practice, reviewed by J. Hardie, June, 409.

Berns J.M., Why Root Canal Therapy?, reviewed by M.D. Peikoff, Aug, 572.

C

Carranza F.A. and Perry D., Clinical Periodontology for the Dental Hygienist, reviewed by E. Stradiotti, Aug, 572-3.

Chambers, D.W. and Abrams, R.G., Dental Communication, reviewed by J. Clovis, Sep, 655.

Clark G.T. and Solberg W.K., Perspectives in Temporomandibular Disorders, reviewed by L.F. Greenwood, Jan, 20.

Collins W.J.N., Forest J.O. and Walsh T.F., A Handbook for Dental Hygienists, reviewed by J.T. Conklin, Jan, 22.

Cons N.C., Jenny J. and Kohout F.J., DAI: The Dental Aesthetic Index, reviewed by R.E. McDermott, May, 328-9.

D

Davis, W.L., Oral Histology — Cell Structure and Function, reviewed by N. Thomas, Jun, 409-10.

Denissen H., Marigan C. and Venini G., Hydroxylapatite Implants, reviewed by G.A. Zarb, Feb, 82-3.

E

Elderton, R.J., editor, Positive Dental Prevention: The Prevention in Childhood of Dental Disease in Adult Life, reviewed by R.E. McDermott, Oct, 719.

F

Feinman, Goldstein R.E. and Garber D.A., Bleaching Teeth, reviewed by G.A. Freedman, Apr, 227.

Ferguson D.B., The Aging Mouth, reviewed by J.G.L. Lovas, Aug, 571.

Fisher, D.W. and Morgan W.W., Modification and Preservation of Existing Dental Restorations, reviewed by W.C. Meyer, Nov, 809-10.

G

Geneser F., Color Atlas of Histology, reviewed by A. Nanci, Apr, 228.

George, J.M. et al., Stress Management for the Dental Team, reviewed by L.M. Rucker, Nov, 809.

Goldstein, R.E., Change Your Smile, reviewed by S. Chaney, Oct, 719.

H

Harty F.J. and Ogston R., Concise Illustrated Dental Dictionary, reviewed by R.D. Oles, Apr, 227-8.

Heartwell C.M. and Rahn A.O., Syllabus of Complete Dentures, reviewed by R. Crawford, May, 327.

Heitler S.M., David Decides About Thumbsucking, reviewed by B. Chiu and D.S. Richardson, Jul, 495.

Hickey J.C., Zarb G.A. and C.L. Bolender, Boucher's Prosthodontic Treatment for Edentulous Patients, reviewed by N. Dibai, Apr, 227.

Hobkirk, J.A., Complete Dentures, reviewed by R. Price, Dec, 886-7.

Houston W.J.B. and Tulley W.J., A Textbook of Orthodontics, reviewed by M. Rennert, Jul, 493.

I

Ishikawa G. and Waldron C.A., Ishikawa's Color Atlas of Oral Pathology, reviewed by J.H.P. Main, Jun, 411.

J

Jackson, J.B. and Hill, R.K., New Trends in Dental Practice Valuation and Associateship Arrangements, reviewed by H.J. Stockton, Nov, 810-1.

K

Kandelman, D., Vos Dents, reviewed by P. Desautels, Oct, 720.

Kennedy D.B., Paediatric Operative Dentistry, reviewed by W.H. Feasby, Feb, 83-4.

Kroeger R.F., Managing the Apprehensive Dental Patient, reviewed by G. Jackson, Mar, 159.

Kussick L., Bone Remodeling Orthodontics by Jaw Repositioning and Alveolar Growth, reviewed by D. Woodside, Jul, 494-5.

Kuwata M., Color Atlas of Ceramo-Metal Technology — Volume 1, reviewed by B. Moulding, Mar, 159.

L

Lejoyeux J., Restauration prothetique amovible de l'edentation partielle, reviewed by H. Gaucher, Jun, 410.

Levine N. et al, Current Treatment in Dental Practice, reviewed by T.L. Boran, Mar, 159-60.

Levy, M., Le Sida et la medecine dentaire, reviewed by P. Desautels, Sep, 654-5.

Liebgott B., The Anatomical Basis of Dentistry, reviewed by G.H. Sperber, Aug, 572.

Lockhart, P.B. et al, A Practical Guide to Hospital Dental Practice, reviewed by R. Boyar, Nov, 811.

Longmore R.B. and McRae D.A., Clinical Anatomy for Dentistry, reviewed by B. Liebgott, Jul, 494.

Lezy J.-P. and Princ G., Stomatologie et Pathologie maxillo-faciale, reviewed by C. Mascres, Feb, 82.

M

Manhold J.H. and Black C., Practical Dental Management: Patients and Practice, reviewed by A. Toeman, Jan, 21-2.

Marzouk, M.A., Simonton, A.L. and Cross, R.D., Operative Dentistry: Modern Theory and Practice, reviewed by D.A. Scott, Sep, 653.

Mascres C., Tourmentes — Les Couleurs du reveil, reviewed by P. Desautels, Apr, 228-9.

Mjoer, I.A. and Fejerskov, editors, Human Oral Embryology & Histology, reviewed by T. Lyons, Oct, 720.

BOOK REVIEW INDEX

N

Newbrun E., Fluorides and Dental Caries, reviewed by G. Nikiforuk, May, 327.

P

Proffit et al, Contemporary Orthodontics, reviewed by T.E. Spracklin, Jul, 493-4.

R

Renner R.P. and Boucher L.J., Removable Partial Dentures, reviewed by R.W. Loney, Aug, 571-2.

Roberts D.H. and Sowray, J.H., Local Analgesia in Dentistry, reviewed by E.R. Young, Dec, 885.

Rozovsky L.E., Canadian Dental Law, reviewed by W.J. Dunn, Jan, 20-1.

S

Shillingburg H.T., Jacobi, R. and Brackett, S.E., Fundamental of Tooth Preparations for Cast Metal and Porcelain Restorations, reviewed by E. Ostro, Dec, 885-6.

Smith B.G.N., Wright P.S. and Brown D., The Clinical Handling of Dental Materials, reviewed by L.N. Johnson, Feb, 81-2.

T

Thylstrup, A., Leach S.A. and Qvist, V. Dentine and Dentine Reactions in the Oral Cavity, reviewed by A.R. Ten Cate, Dec, 886.

Tyron A.F., Oral Health and Aging, reviewed by D. Charles, Jan, 21.

V

Vanherle G. and Smith D.C., Posterior Composite Resin Dental Restorative Materials, reviewed by H.A. Lyttle, Mar, 161.

W

Wander, P. and Gordon, P., Dental Photography, reviewed by R.M. Goodlin, Sep, 653-4.

Wasserman B., Root Scaling and Planing, reviewed by C.H. Hawkins, Feb, 81.

Wood N.K. and Goaz P.W., Differential Diagnosis of Oral Lesions, reviewed by C. Kilmartin, Jun, 409.

Become a
UNICEF Volunteer
**IT'S A CHANCE
TO GROW**



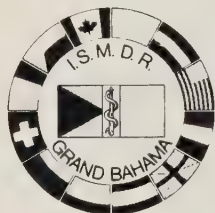
Ma Hla Hla,
Burma

*For both
of you!*



Andrea Martin
Actress and Unicef Volunteer

Unicef Canada 
1-800-268-6364



SIXTH INTERNATIONAL POSTGRADUATE SEMINAR FOR DENTISTS

Date	February 27 – March 3, 1989
Location	Atlantik Beach Hotel, FREEPORT, Grand Bahama.
Topics	* Cosmetic Dentistry. * Dental Implant Systems * Cranio-Mandibular Dysfunction * AIDS and Dentistry.
Information	Dr. J. Hardie, Chief, Department of Dentistry, Ottawa Civic Hospital, 1053 Carling Ave., Ottawa, Ontario. K1Y 4E9. (613) 725-4084.



CANADIAN FUND
FOR DENTAL EDUCATION

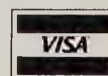
FONDS CANADIEN POUR
L'ENSEIGNEMENT DENTAIRE

Help Build the Fund

Send your tax deductible gift to:

105-1815 ALTA VISTA DRIVE
OTTAWA, ONTARIO K1G 3Y6
TELEPHONE: 613-731-0493

We now accept



The seven wonders of the world.

1 Does Tridont take a percentage of my gross?

No. Tridont does not share in the profits of dentists who practice in Tridont Dental Centres. In return for a flat rate monthly management fee, Tridont provides Centres with support services in accounting, financial reporting, payroll, equipment procurement, leasing and recruitment – a complete business management system, with additional services available.

2 How can Tridont benefit me as an established practitioner?

Conversion to a Tridont Dental Centre is an excellent option for established dentists who wish to be relieved of business management concerns, receive cash for assets, and remain in an ownership position. Tridont makes a cash payment for equipment and leaseholds, then leases them back to the new partnership, which consists of the existing dentist(s) and any new partners. Tridont then provides the complete range of support services which all Tridont Dental Centres receive.

3 Who really owns the practice?

Tridont does not own any Dental Centre, nor does the company have an ownership position in any practice. Each Tridont Dental Centre is owned by a partnership comprised of practicing dentists. The partners receive a share in the profits of the Centre, and retain full professional autonomy in terms of treatment modalities, laboratory work and referrals.

4 Does Tridont set my work hours?

No. The practitioners in each Centre act as a team and set work schedules accordingly. Most Tridont Dental Centres are established with at least three participating dentists in order to provide the convenient hours of operation which patients prefer.

5 Do I have to meet a quota each month?

No. Tridont does not set performance quotas for the Centres or dentists. Targets for growth and profitability of each Centre are set by the dentists who practice in them. Tridont Dental Centres are not walk-in clinics, and in most cases follow the approved fee guide developed by provincial licencing bodies. To further assist growth of the Centres, the Tridont Home Office support team can be called upon to provide management guidance and consultation.

6 Who selects my staff?

Each Tridont Dental Centre has the freedom to independently select dental associates, assistants and hygienists to meet staffing requirements. As part of the ongoing range of services provided to Centres, Tridont operates a national placement program which attracts some of the most highly skilled practitioners and support staff available anywhere in Canada.

7 Must I participate in prepaid dental programs?

The decision to participate in prepaid dental programs rests solely with each dentist who practices in a Tridont Dental Centre. Tridont Health Care Inc. does have an ownership position in Dental Maintenance Organization (DMO) Inc., which administers prepaid dental benefits programs substantially different from those in the United States. DMO is a separate entity from Tridont Dental Centres, and there is no obligation to join the DMO provider network.

If you're wondering about other aspects of the Tridont system, we've prepared a detailed information folder which you can request by telephone.



Call Tim Brown, Licencing Representative, in Toronto at 865-9211 or Toll Free in Ontario 1-800-268-8217; elsewhere in Canada 1-800-268-8589.

Tridont Health Care Inc.

Announcements

January/Janvier 1989

January thru December 1989: Maxi-Course in Oral Implantology sponsored by the American Academy of Implant Dentistry and the American Academy of Implant Dentistry Research Foundation. One weekend per month. Contact: Brookdale Hospital Medical Center, Attn: Marguerite Rocholl — Maxi-Course Registrar, Dept of Oral Surgery, Linden Blvd at Brookdale Plaza, Brooklyn, NY 11212 USA. Tel: (718) 240-6282.

January 14-28: 18th International Alpine Dental Conference in Courchevel 1850 France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogan Square, London SW1X 0JP. Tel: 01-235 0787.

January 15-21: Barbados Dental Association Mid-Winter Meeting. For more information, contact: Dr. O.F. Weel, President, Barbados Dental Association, P.O. Box 95, Bridgetown, Barbados.

January 27-29: Dentistry for the Nineties An International Dental Congress sponsored by the College of General Dental Practitioners of Sri Lanka. For details, contact: Dr. L.S.W. Dassanayake, International Dental Congress, College of General Dental Practitioners of Sri Lanka, 439 Elvitigala Mawatha, Colombo 5, Sri Lanka.

February/Février 1989

February 2-4: Expanding Dentistry's Horizons The Miami Winter Meeting sponsored by the East Coast Dental Society at the Hyatt Regency Miami, Florida. For more information, contact: East Coast Dental Society, 420 S. Dixie Highway, Suite 2E, Coral Gables, FL 33146 U.S.A. (305) 667-3647.

February 4: Centennial Ball of the Xi Psi Phi Dental Fraternity at the Royal York Hotel in Toronto. For more information, write: Dr. Don Ducasse, 4211 Yonge St., Suite 204, Willowdale, Ont M2P 2A9.

February 4-11: Alpha Omega International Western Scientific Winter Seminar in Snowbird, Utah. For

information, contact: ALPHA OMEGA, 2016 Bathurst St, Toronto, Ont M5P 3L1. Phone (416) 782-7277.

February 17-21: Annual Convention of the Jamaica Dental Association at Mallard's Beach Hotel, Ocho Rios, Jamaica. For information, contact: Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica WI.

February 25-March 4: Virgin Island 11th Annual Scientific Meeting. Limited Attendance. Please contact: Dr. Bob Brandon, 85 Lonsdale Rd, London, Ont N6G 1T4 (519) 657-3368.

March/Mars 1989

March 6-10: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. For information, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

March 11: Advanced Prosthodontics for Restorative Dentists a continuing education course sponsored by the Alberta AGD in Calgary, Alta at the Convention Centre. For further information, contact: Dr. Eugene Della Lana, (403) 244-4867.

March 16-19: First Asian Congress on Oral and Maxillofacial Surgery organized by the Asian Association of Oral and Maxillofacial Surgeons in Manila, Philippines. Invited speakers include E. Steinhauser (FDR), J. Langdon (UK), Bruce Epker (USA). For further details, write: Congress Secretariat, First Asian Congress on Oral and Maxillofacial Surgery, c/o Philippine Heart Center, Suite 401, East Avenue, Quezon City 1100, Philippines.

March 18-25: 19th International Alpine Dental Conference in Courchevel 1850, France. Details from: L.W. Bryer, International Dental Foundation, 24 Cadogan Square, London SW1X 0JP. Tel: 01-235 0787.

March 23-24: 8th Jordanian Dental Congress in Jordan. Contact: Dr. Irfan Sultan, PO Box 1326, Amman, Jordan.

March 29-April 1: Review of the Biologic and Clinical Aspect of Endodontology in Ann Arbor, MI. Contact: Office

of Continuing Education, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078 USA (313) 763-5070.

April/Avril 1989

April 10-15: 22nd National Dental Congress of the German Dental Association in conjunction with 111th Annual Meeting of the German Society of Dental, Oral and Orthodontic Medicine and the German Dental Industry Association's International Dental Show in Stuttgart, Germany. Contact: Stuttgarter Mess & Kongress GmbH, Am Kochenhof 16, D-7000 Stuttgart 1, West Germany.

April 12-15: Bundesverband der Deutschen Zahnartze in Killesberg/Stuttgart, Germany. Contact: Cornelia Hackenbruch, Bundesverband d. Deutschen Zahnartze, Universitätsstr. 73, 5000 Köln 41, Germany.

April 26-30: 14th Asian Pacific Dental Congress at the Korea World Trade Center in Seoul, Korea. For further information, please contact: Secretariat of the 14th APDC, c/o Korean Dental Association, PO Box 41 Youngdeungpo, Seoul 150, Korea Tel: (02) 653-3351/3.

April 27-29: Journées dentaires internationales de Nice-Côte d'Azur in Nice France. For information, write: Dr. Jean-Louis Vidal-Revel, President, Journées dentaires internationales de Nice-Côte d'Azur, 37, av. Villermont, 06000 Nice, France.

April 27-30: Ontario Dental Association 122nd Annual Spring Meeting at the Metro Toronto Convention Centre. All members and groups of the dental profession are invited to prepare a clinic for presentation at the Spring Convention. Deadline for applications is November 30, 1988. For more information, contact: Diana Thorneycroft, ODA Headquarter, 234 St. George St, Toronto, Ont. M5R 2P1.

April 28-30: Canadian Academy of Periodontology and Ontario Society of Periodontists Seminar to be held at the Sutton Place Hotel, Toronto. For more information: Dr. Marvin Budd, 2130 Lawrence Ave E., Suite 206, Scarborough, Ont M1R 3A6 (416) 751-8811.

May/Mai 1989

May 1-3: 9th International Dental Meeting in Nice, France. For more information, contact: Mrs. Schmitt, 37, av Villermont, 06000 Nice, France. Tel: (33) 93 98 26 09.

May 21-26: 10th International Conference on Oral and Maxillofacial Surgery in Jerusalem. Contact: Dr. Eli Ronen, Chairman, Organizing Committee, 10th International Conference on Oral and Maxillofacial Surgery, PO Box 5006, Tel Aviv 61500, Israel.

May 24-27: Swiss Dental Association Convention in Switzerland. Contact: Dr. Pierre Spahn, 51, av du Casino, 1820 Montreux, Switzerland.

May 28-June 1: Les Journées dentaires du Québec 1989 at the Montréal Convention Centre. For information, please contact: Chantal Bally, ODQ, 625 René-Levesque West, 5th Floor, Montréal (Qué) H3B 1R2. (514) 875-8511.

May 29-June 2: Periodontal and Prosthetic Treatment in Advanced Cases in Malmo, Sweden. For details, contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June/Juin 1989

June 1-5: 12th Congress International Association of Dentistry for Children in Athens, Greece. For details, contact: Secretariat, 12th Congress IADC, 41, Skoufa Str, Athens 106 73, Greece.

June 4-9: V International Conference on AIDS in Montréal, Québec. For more information, write to: V International Conference on AIDS, Secretariat, Kenness Canada Inc, 1010, rue Ste-Catherine ouest, bureau 628, Montréal (Québec) H3B 1G7.

June 5-9: XXV Congreso nacional y V International de Odontologia y Estomatologia in Malaga, Spain. For information, contact: SITECC-SIASA, c/o Manuel del Palacio, 16, Edif. Costa Bella, Apto. 3, 29017 MALAGA, Spain. Tel: 29 29 20 - 29 41 43.

June 5-9: Osseointegration in Clinical Dentistry: Clinical and Technician Training Courses in Malmo, Sweden. Contact: Lund University, Postgraduate Centre of Dentistry, Carl Gustafs vag 34, S-21421 Malmo, Sweden.

June 8-11: Alberta Dental Association Convention in Red Deer, Alberta at the Capri Centre. Theme "Unity in Dentistry". Registration: Dr. Barry Fleming, Highland Green Shopping Centre, 6315 Horn St, Red Deer T4N 6H5 Tel: (403) 346-8443.

June 19-23: 14th International Congress of Gerontology in Acapulco, Mexico. For details, contact: Congress Secretariat, Jojutla No. 91, Tlalpan CP 14090, Mexico D.F., Mexico.

June 26-30: XII Congreso de la Federación odontologica latinoamericana y XI Congreso nacional de Estomatologia in Havana, Cuba. Contact: International Conference Center, Apartado 16046, Zona 16, Havana, Cuba. Tel: 20-4653.

June 28-30: 11th International Symposium on Dental Hygiene in Ottawa. For

more information, contact: Wilma E. Motley, 18952 Blackhawk St, Northridge, CA 91326, USA.

June 28-July 1: International Association of Dental Research & International Conference on Oral Biology in Dublin, Ireland. For information, contact: Ms. Eloise Bredder, Administrative Assistant, American Association of Dental Research, 1111 - 14th St NW, Suite 100, Washington, DC 20005 USA.

June 30-July 2: Dentistry 89 in Oxford, England. For details, contact: Linda Bridges, Conference Office, British Dental Association, 64 Wimpole St, London W1M 8AL. Tel: 01-935 0875.

August/Août 1989

August 27-30: Canadian Dental Association Convention in Vancouver, British Columbia. For more information, contact: Miss Linda Teteruck, Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6 Tel: (613) 523-1770.

Obituaries/Nécrologie

Berry, Francis, K.: Dr. Berry received his early education at the University of British Columbia and was graduated from the University of Oregon with his dental degree in 1948. He practised in Vancouver.

Eaton, Donald C.: Born in 1919, Dr. Eaton was a graduate of the Dalhousie University dental school in 1943. He conducted a practice in Halifax. He was an Honorary Life Member of the Nova Scotia Dental Association.

Hyde, Russell, G.: Born in 1896, Dr. Hyde graduated from the University of Toronto, Faculty of Dentistry, in 1921. He conducted a practice in Hagersville, Ontario.

Kilgour, J.F.: Dr. Kilgour was born in 1914 and graduated with his dentistry degree from the University of Toronto in 1941. He practised in Collingwood, Ontario. He was a Life Member of the Canadian Dental Association.

Purdy, Harry, L.: Born in Vancouver in 1906, Dr. Purdy was a graduate of North Pacific University school of dentistry in 1929. He conducted a practice at Robert's Creek, British Columbia. He was a past president of the Vancouver and District Dental Society.

Waid, William, C.: Dr. Waid, a native of Winnipeg, received his DDS from the University of Toronto in 1951. He conducted a practice in Stoney Creek, Ontario. He was a Life Member of the Canadian Dental Association.

Plan Now to Attend

the 1989 CDA CONVENTION IN VANCOUVER B.C.



August 27 to 30, 1989



THE ROYAL COLLEGE OF DENTISTS OF CANADA
LE COLLEGE ROYAL DES CHIRURGIENS DENTISTES DU CANADA

INFORMATION FOR CANDIDATES INTERESTED IN THE MEMBERSHIP AND FELLOWSHIP EXAMINATIONS OFFERED BY

THE ROYAL COLLEGE OF DENTISTS OF CANADA

The examinations for Membership and Fellowship in the College are held twice a year in all dental specialties recognized by the Canadian Dental Association and/or the American Dental Association.

The opportunity to sit these examinations is offered to those who qualify following graduation from an approved graduate or post-graduate program.

The Membership Examination is held in May/June and October/December, and the Fellowship Examination in June and December. Deadlines for applications for each session are March 1st and August 31st.

Successful completion of the examinations qualifies the candidate for inclusion in the College's Register of Fellows and Members and the use of the designation FRCD(C) or MRCD(C).

Information concerning the examinations and application forms are available from:

The Royal College of Dentists of Canada,
67 Berkeley Street,
Toronto, Ontario M5A 2W5
(416) 367-5373

ANTI-PLAQUE

Viadent[®]

 **HORNER**
Montreal, Canada

Sanguinaria Extract
Anti-Plaque/Anti-Gingivitis Preparations

INDICATIONS: Adjunctive treatment for the maintenance of good oral hygiene, control of dental plaque and the reduction and inhibition of gingivitis.

CONTRAINDICATIONS: Other than hypersensitivity to Viadent or one of its components, there are no contraindications to the use of this product.

PRECAUTIONS: It is possible that Viadent Anti-Plaque preparations may interact chemically with other orally applied drugs, although no such drug interactions have been reported to date. Routine swallowing of the product is not recommended.

Staining of dental restorations does not appear to be a problem with Viadent preparations. In laboratory testing with the rinse, only one light-cured composite, Durafil-Kulzer, was slightly yellowed after immersion in the rinse for 24 hours.

Use of Viadent Anti-Plaque preparations is not recommended in pediatric oral health programs due to the alcohol content in the rinse and for the toothpaste, when caries is the principal dental disease and for which a fluoride product is indicated.

The safe use of Viadent Anti-Plaque preparations during human pregnancy and lactation has not been established. As with any drug, use during pregnancy or lactation requires that the expected therapeutic benefit of the drug be considered against the unknown risks to the mother, foetus or neonate.

DOSAGE AND ADMINISTRATION: Viadent Anti-Plaque Oral Rinse: Administer after brushing morning and evening. Rinse twice consecutively using 15 mL per rinse for 15 seconds each time.

Viadent Anti-Plaque Toothpaste: Administer as a ribbon of paste on a toothbrush morning and evening.

SUPPLIED: Viadent Anti-Plaque Oral Rinse: Bottles of 500 mL.

Viadent Anti-Plaque Toothpaste: Tubes of 50 mL, 100 mL.

A MESSAGE TO THE DENTISTS OF CANADA

The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, the Canadian Dental Association offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

The Canadian Dental Association recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

The Canadian Dental Association is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

THE CANADIAN DENTAL ASSOCIATION
NEEDS
YOUR SUPPORT

Offices and Practices

BRITISH COLUMBIA: PRACTICE FOR SALE. Established, 8-year-old quality practice located in Vancouver's west end fashion district. Three full operatories, with excellent staff and hygiene recall system. Steady new patient flow, with 95 per cent insured. Good gross with opportunity for growth. Please call Dr. Kary Taylor at (604) 687-8319 or write to 509 - 1270 Robson St, Vancouver, BC V6E 6Z3.

BRITISH COLUMBIA—Kootenays: Must sell. High quality, general family practice established 11 years. Solid patient base with very active recall program. Good gross with low overhead. The area offers outstanding recreation, education and family living. Reply to CDA Box 2421.

BRITISH COLUMBIA—Nanaimo Area: Family practice for sale. Spacious computerized office in modern medical centre. Spectacular ocean views. Two operatories (plumbed for four). Rapid growth area with superb amenities for quality life style. Well below market value for quick sale. Returning to school. Call (604) 390-2832.

BRITISH COLUMBIA—Vancouver: Busy, well-established, high quality pedo practice with excellent referral base and recall program. Modern well-equipped four operatories with nitrous oxide. Tastefully decorated, located in professional building near major shopping mall in fast growing community with unlimited growth potential. Please contact: Whitehead and Associates, 4365 West 3rd Ave, Vancouver, BC V6R 1M6 (604) 222-3317.

ALBERTA—North-Central: Well-established general family practice for sale. Two of four operatories fully-equipped,

plus an O.P. 5 Pan x-ray. Good patient flow, excellent lease, high annual gross. Terms negotiable. Business: (403) 837-8335. Home: (403) 837-2898.

ALBERTA—Rocky Mountain House:

A beautiful, pleasant, non-irritating, leisurely dental practice for sale. Two operatories — full equipped — 15 years old — work 175 days per year — earn over \$50,000 net on very low overhead such as \$50,000 plus/year. Cost: \$30,000, \$15,000 down — owner will carry balance at prime + 1% for 18 months. (403) 845-3888 24 hour service.

ALBERTA—Spruce Grove: Practice For Sale. Satellite city of Edmonton. Busy, ten-year-old, high-volume, preventive-oriented family practice in growing residential area. Eighty new patients per month, 5000 accounts. 4000 sq ft facility is three years old. Siemens OP10 with cephalometric attachment and most of the other equipment is three years old or less. Nine fully-equipped operatories. One associate and full-time hygienist in practice now. Owner wishing to retire but will stay as an associate for a smooth transition if new owner desires. Direct inquiries to Dr. James McNab, 115 Main St, Spruce Grove, Alberta T7X 3B5 (403) 962-3414.

ONTARIO—Amherstburg: Busy general practice for sale. Established 14 years. Excellent gross and net income. 95 per cent insurance. 3 hygienists. Cost-sharing modern, pleasant facilities with two other dentists. Excellent location. On the lake 25 minutes from Windsor/Detroit. Great opportunity. Call (519) 736-4672.

ONTARIO—London: For Sale. Growing general practice with good patient flow and active, pre-booked recall system. Three modern, fully-equipped operatories with first class equipment — Siemens x-ray units, Pelton Crane Chairman

chairs, Cavi-jets, Adecos, etc. Recent professional appraisal suitable for obtaining financial assistance. Good long-term lease. For further details call (519) 667-4040.

ONTARIO—Ottawa: Dental office space available in downtown location. Landlord will provide generous leasehold improvement package. Call (613) 234-4386 daytime.

SOUTHERN ONTARIO: Well-established and growing general practice for sale in growing town 55 minutes from Toronto and Hamilton. Approximately 1600 active patients, new 1113 sq ft office, 3 plumbed operatories, one fully-equipped. Recent professional appraisal available. For details, call (416) 873-2012 during day or (416) 873-0787 evenings.

SOUTHWEST ONTARIO: Busy, established, family practice for sale in small town. Modern 30' x 50' building, air-conditioned, two well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operatory). Excellent income, low overhead. Please call (519) 482-5864.

NOVA SCOTIA: Exceptional Opportunity. Very busy, modern practice available in beautiful town on South Shore of Nova Scotia. Well-established, family-oriented, excellent income. For details contact: 6452 Vienna St, Halifax, NS B3L 1S8 (902) 454-9027 or 455-3748.

NEW ZEALAND: Practice for Sale. Situated mid North Island in beautiful Waikato dairy farming country. One hour drive to surf beaches and also the Lake district where some of the finest trout fishing in the world is found. An hour and a half to skiing and the same distance to Auckland, New Zealand's largest city. Busy, growing practice that has a high gross. Price \$90,000. Enquiries: P.J. Childs, 17 Arapuni St., Putaruru. Phone 8727 or 27.371 after hours.

NEW ZEALAND: Opportunity to purchase practice before entry qualifications change next year. Associate practice in desirable town which is the centre of horse breeding. Quality dentistry and unlimited potential. Also a 1/2 share or the whole of a part-time practice 40 miles away can be bought. It is well set up but needs more development time and the price is very reasonable. Forty-year-old owner of these practices wishes to spend more time in outdoor pursuits. Reply to Dr. B. McElwee, 24 Dick St, Cambridge, New Zealand.

Associateships Available

NORTHWEST TERRITORIES: Excellent opportunity for associateship in Yellowknife in a modern, state-of-the-art dental clinic. Excellent support staff and good recreational facilities. Emphasis on good quality dentistry and we require a dedicated, efficient dentist concerned with patient care and management. Excellent remuneration and arctic travel available. Please reply to CDA Box 2367.

BRITISH COLUMBIA: LOCATED ON PRISTINE KOOTENAY LAKE. THE JEWEL OF BRITISH COLUMBIA. Our part-time, rural practice has grown beyond expectation. Excellence and service are our only products. We need a secure, experienced associate with orthodontic skills to join semi-retired doctor in this beautiful clean-air environment. Dr. Harold Prussin (604) 227-9430.

BRITISH COLUMBIA—Duncan: (45 minutes to Victoria) Full-time associate, leading to cost-sharing partnership, needed in well-established group practice. Full range of dental practice with hospital privileges. Reply to: Drs. Philp, Chilibeck or Wang, 345 Jubilee St, Duncan, BC V9L 1W9. Tel: (604) 748-6766.

BRITISH COLUMBIA—Fraser Valley: General family practice requires a capable, conscientious and ambitious associate three days a week in an extended hours practice. Phone evenings (604) 850-3270 or (604) 852-3619.

ALBERTA—Edmonton: ASSOCIATE WANTED — In extended-hour practice with opportunity for buy-in potential in future. Excellent opportunity for an ambitious quality-oriented practitioner. Contact Dr. Brian Pisesky at (403) 487-8793.

SASKATCHEWAN—Saskatoon: A well-established dental practice that is relocating to a new building requires an ambitious associate willing to do a lot of perio, endo and prosthetics. Send reply to CDA Box 2430.

ONTARIO—London: Full-time Associate required for very busy, established general practice. Partnership opportunity available. Call Barbara at (519) 455-2551.

ONTARIO—Ottawa: Associate required full-time with buy-in potential. Progressive, family-oriented practice. Excellent working conditions in modern environment. Three operatories available and pan. Please call (613) 238-5302 days or (613) 744-4022 evenings.

ONTARIO—Ottawa Area: Associate required part-time, flexible hours. Excellent opportunity for dentist needing additional revenue while their practice builds. For more information, please call (613) 774-2616.

ONTARIO—Parkhill: ASSOCIATE REQUIRED. Preventive-oriented group practice environment requires an additional dentist. Future partnership possible. Located in southwest London, Ontario. One year old plaza. Excellent opportunity. Contact Dr. J. Rick Merritt at (519) 473-0220.

ONTARIO—St. Catharines: Associate required for modern store-front location. Seeking dynamic, team-oriented individual to join established, highly preventative, general practice with motivated, congenial staff and buy-in potential. In scenic Niagara, minutes from excellent golf and sailing facilities, 20 minutes to US border and 1 1/2 hours from excellent skiing. Reply in writing to CDA Box 2427.

ONTARIO—Toronto: Full-time associate required for very busy, established general practice. Partnership opportunity available. Polish language an asset. Call Ana Maria (416) 921-1224 or 921-4016.

Opportunities Available

BRITISH COLUMBIA: PARTNERSHIP AVAILABLE in the interior of BC close to Vancouver. Preventative family practice

offers professional satisfaction and sound investment opportunity. Immediate high income assured! Independent evaluation is available. Opportunity for real estate investment. Ideal family community with exceptional year-round recreation. Please reply to CDA Box 2429.

BRITISH COLUMBIA—Prince George: Large solo practice available in a group cost-sharing setting. Facilities are up-to-date and the office is computerized. The practice is both successful and enjoyable. Call Elaine David: Monday-Friday — Daytime (604) 562-5551; Evenings or weekends (604) 562-1927.

BRITISH COLUMBIA—Victoria: Exceptional Opportunity. Attractive 1600 sq ft facility with 6 modern well-equipped operatories (Pan, Nitrous, Adec, Siemens, P&C). Well-established family practice with solid patient base. Excellent location with ample parking. Very active recall program. Unlimited growth potential. For particulars, call collect, Dr. Donald Bays (604) 381-6433.

ALBERTA—Edmonton: I am searching for a hardworking, ambitious, quality-oriented dentist to practise in a dental clinic situated with a busy walk-in medical clinic. This dental office has all new equipment, including Pan. This doctor should have the desire to succeed independently and reap the rewards in one year with a possibility of partnership. Are you that dentist? Please contact (incl résumé): Dr. N. Manji, 9710 — 182 St, Edmonton, ALTA T5T 3T9 (409) 459-1799.

ALBERTA—Edmonton: Associate-Partner. A well-established, busy, certified non-hospital surgical facility is seeking an associate-partner. The facility provides general anesthesia/sedation services for dental and oral surgical procedures administered by two staff medical anesthesiologists. The facility is located in a large downtown medical-dental centre and has fully-equipped operatories, diagnostic facilities and excellent support staff. There is a large and continually growing patient demand base. This turnkey, revenue-generating opportunity will be of interest to oral surgeons/dentists wishing to practice full mouth reconstruction. Reasonable financing or lease-back arrangements are available. Phone (403) 481-7083 evenings/weekends.

ONTARIO—Ottawa: Modern, well-established periodontal practice requires a full-time associate with opportunity for partnership. Candidate should be a certified periodontist with NDEB certificate and membership in the Royal College of Dental Surgeons of Ontario. Call Dr. J. Kershman (613) 738-1108 or 521-8161.

ONTARIO—North Toronto: Position available immediately for a Paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost sharing arrangement. Please reply to CDA Box 2426.

NOVA SCOTIA: ASSOCIATE/PARTNER wanted to join a young, energetic and growing practice in downtown Halifax/Dartmouth offices. For more information contact Dr. Chris Petropolis, 176 Portland St, Dartmouth, NS B2Y 1J3. (902) 465-2140 Dartmouth, (902) 421-1047 Halifax, (902) 423-9691 Home.

Advertisers' Index

CDSPI	891, 909, 916, 917
Core-Vent Corporation	918
F.W. Horner, Inc.	900, 901, 930
Interplak	902
The Institute for Practice Development	883
Ontario Public Service	895
Plax	IBC
Premier Dental (Canada), Inc.	887
Procter and Gamble, Inc.	IFC
Royal College of Dentists of Canada	930
Sixth International Postgraduate Seminar	926
Town of Porcupine Plain	915
Trident Health Care Inc.	927
University of British Columbia	915
Warner Lambert Canada, Inc.	884, OBC
Whistler Seminars Inc.	883

Equipment

ONTARIO—Sault Ste Marie: Dental Equipment For Sale — Excellent Condition. 1 Ritter Motor lounge chair with base Model H-45, 1 Castle Unit mounted light Model T-V5A, 1 Siemens Dental Unit — Sironia with cuspidor, 1 Siemens X-ray Unit. Heliodent wall mounted with timer, 1 Kavo low-speed handpiece, 1 Siemens high-speed handpiece. Asking only \$3500 for everything. Priced to sell quickly! Call (705) 256-5071.

QUÉBEC: ANTIQUE pied et tout ce qui faut pour faire plombage datant du 1900 siècle. Attraction intéressante dans bureau de dentiste. Téléphone (514) 759-2453 ou 883-5104. Très bon état.

Wanted: All dentists with offices and practices for sale. Advertise in the classified section of the Journal of the Canadian Dental Association for best results (see classified advertising form on this page).

Doctor . . . a moment of your time!

Reach every dentist and dental student in Canada

Over 14,000 dentists and 1,600 dental students read the Journal of the Canadian Dental Association every month. The Journal has a section exclusively for you — the Marketplace. Whether you are buying a practice, selling a practice, or looking for an associate, we are here to give you the best exposure possible.

Dentists who do not get the response they anticipated after running their paid advertisement twice will receive one placement of their ad at no charge.

CLASSIFIED ADVERTISEMENTS

The classified advertising department of the Journal of the Canadian Dental Association is published as a service to the dental profession. Rates are minimal. Therefore, even on display classified advertisements, no agency commission is payable.

CLASSIFIED ADVERTISING RATES

50 words or less, per ad (minimum) \$30.00 plus 50¢ for each additional word. Box number \$5 per insertion. All ads must be prepaid. (Cheque or money order). NO AGENCY COMMISSION PAYABLE. Closing date is first day of month preceding month of issue. No cancellation or copy changes after closing date. Ads not accepted over telephone. The Journal reserves the right to reject or edit advertisements that do not conform to Journal requirements.

DISPLAY CLASSIFIED RATES

Half page and quarter page ads only. Commercial advertisers do not qualify. One time rate only: half page vertical or horizontal \$500.00, quarter page \$315.00. Payable in Canadian funds.

Replies to CDA box numbers should indicate box number on envelope. Names and addresses of box number advertisers will not be revealed.

The Journal of the Canadian Dental Association neither investigates the offers made in these advertisements nor assumes any responsibility for them.

**Write: Journal, Classified Advertising Dept. Attention: Jennifer McClinton
1815 Alta Vista Dr., Ottawa, Ontario, K1G 3Y6**

(PLEASE PRINT)

NAME: _____

STREET _____

CITY _____ POSTAL CODE: _____

No. of Insertions: _____ Starting in _____

AD COPY TO READ AS FOLLOWS:

ALL ADS MUST BE PREPAID

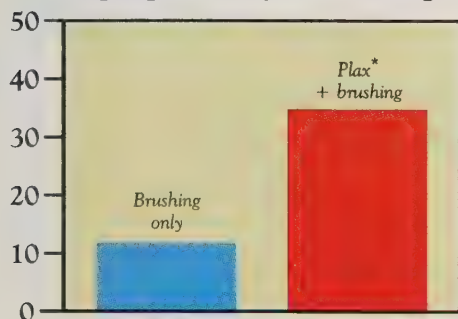
AMOUNT OF CHEQUE ENCLOSED: _____

An archaic Middle Eastern toothbrush,
the *siwak* (or *miswak*) is made from a water-soaked twig of the *Salvadora persica* tree.
The *siwak*'s inherent benefits to the teeth and gums were first recognized by
Muhammad who decreed its ritual use to all Muslims.

Introducing Plax*. The greatest advance in home dental care since the *siwak*.

The age-old problem of plaque removal has a new solution. Plax*. The only dental rinse designed specifically to remove plaque.

Removes 3 times more plaque than just brushing.¹



In hard-to-brush areas, the improvement over regular brushing was even more dramatic with Plax*.¹

Formulated from trusted ingredients.

Plax* is considered to be exceptionally safe even in "exaggerated use" circumstances.² When test subjects greatly exceeded its recommended use,[†] there were no signs of tissue sensitivity or damage to tooth enamel.²

Recommend Plax* and encourage compliance.

Pleasant-tasting and convenient, Plax* is easily incorporated into your patients' daily oral health care regimen.

For best results, patients should rinse with 1 tablespoon (15 mL) of Plax* for 30 seconds *before* brushing with their regular dentifrice.

New Plax*. The anti-plaque, pre-brushing rinse that is making dental history.



Checks Plaque Between Checkups.

A World Of Reasons To Use Trident With Xylitol To Help Fight Cavities.

OCT 26 1990

We can give you a world of reasons to use Trident with xylitol as a pro-active addition to your patients' comprehensive cavity-fighting programs.

Those reasons are field trials conducted all around the globe that consistently show xylitol, the natural source sweetener, is an effective weapon in the fight against tooth decay.

Here is a brief summary of key studies.

MONTREAL, 1985-87: Caries Reduction

A 65% reduction in caries was achieved in a group of 274 children aged 8-9 given xylitol gum t.i.d.; compared to the same age group not given the gum. Both groups received identical preventive dental care throughout the study.

FINLAND, 1982-87: Long-Lasting Benefits

A 30-60% reduction in new caries was seen in a 2-year study comparing 172 children aged 11-12 given xylitol gum; to a control group of 152 children not receiving the gum. When continued for a third year, an overall 73% reduction was achieved.

HUNGARY, 1981-84: Xylitol VS. Fluoride

A 43% reduction in caries was achieved in children aged 6-11 who received xylitol in confectionery products; compared to 2 other groups using systemic fluoride in dentifrices or milk and water, respectively.

MICHIGAN, 1988: Reduction in Plaque

Three groups of students chewed 10 pieces of gum each per day, sweetened with xylitol, sorbitol or a xylitol/sorbitol mixture respectively. Two weeks later, the xylitol and xylitol/sorbitol groups showed a decrease in plaque from baseline values; the sorbitol group showed an increase.



did not contain xylitol

Trident and Today's Dentistry

We are certain you will conclude from the evidence being gathered around the world that Trident with xylitol, used with proper oral hygiene practices, can help reduce tooth decay significantly. Trident is particularly useful after snacking, when access to a toothbrush or dental floss may be inconvenient.

We invite you to participate in our professional sampling program and recommend Trident as an aid in cavity prevention. With Trident's great, long-lasting flavours,* your patients have every reason in the world to comply with your advice.

*Spearment flavour does not contain xylitol.

For more data on Trident with xylitol, such as abstract reprints or case studies, write to: Xylitol Information, Warner-Lambert Canada Inc., 2200 Eglinton Avenue East, Scarborough, Ontario M1L 2N3

FR. POLYNESIA, 1981-84: Sugar Substitution

Partial sugar substitution precipitated a 37-39% reduction in caries when 273 children given xylitol-sweetened between-meal snacks were compared to a control group whose snacks



Another Reason To Use Trident With Xylitol: You Save 60% On Patient Samples!

Please send me the following Trident patient sample packs, each containing 10 boxes (maximum order, 5 sample packs):

- _____ x Trident Assortment (Peppermint, Freshmint, Cinnamon, Fruit, and Bubble Gum)
- _____ x Trident Fruit
- _____ x Trident Freshmint
- _____ x Trident Bubble Gum

NAME: _____

ADDRESS: _____

CITY: _____

The price of each sample pack is \$40.00 (each contains 180 packages — regular value, \$99.00). Please add applicable P.S.T. (per pack: B.C. \$2.40; Sask. \$2.80; 20; P.Q. \$3.60; N.B. \$4.40; P.E.I. \$4.00; 30). Enclosed please find my cheque payable to Trident the amount of \$ _____

STAL CODE: _____

Send to: Trident Professional Plan, P.O. Box 290, Station A, Scarborough, Ontario M1K 9Z9. Please allow 4-6 weeks for delivery. Offer valid until June 30, 1990.

031960032

7 DAYS

THIS BOOK MAY BE KEPT FOR
7 DAYS ONLY
IT CANNOT BE RENEWED

JAN 24 1991

NOV 13 1991

JAN 18 1993

JAN 28 1993

APR 9 1993

OCT 4 1993

OCT 6 1993

JAN 24 1994

SEP 27 2001

MAR 21 2006

JUN 16 2008

APR 13 2010

NOV 21 1990

RK
1
C37
v. 54
no. 7-12

Canadian Dental Association
Journal

Canadian dental assoc
v. 54(7-12)

TODAY'S DATE	
Jan 17/91	M. Mike
Nov. 6, 91	M. Yu.
11/1/93	A. G. rod
Jan 21/93	Eisenstaf
Apr. 12/93	H. Lind

270A

